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TCM DIAGNOSES IN TEMPOROMANDIBULAR DISORDERS

- A PREREQUISITE FOR THE DEVELOPMENT OF OPTIMISED PROSPECTIVE, RANDOMISED CONTROLLED STUDY DESIGNS -

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Dissertação de Candidatura ao grau de Mestre
em Medicina Tradicional Chinesa submetida
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da Universidade do Porto.

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Abstract

Background

Pain related to TMD is a great clinical challenge in dentistry and represents a major cause of non-dental pain in the orofacial region. The aetiology of TMD is considered to be multifactorial, biologic, behavioural, environmental, social, emotional, and cognitive factors seem to play a role.

These disorders cause recurrent or chronic pain and dysfunction in the jaw joint and its associated muscles and supporting tissues. After chronic low back pain, TMDs are the second most commonly occurring musculoskeletal conditions resulting in pain and disability, affecting approximately 5 to 12% of the population, with an annual cost estimated at $4 billion. About half to two-thirds of those with TMJ disorders will seek treatment. Among these, approximately 15% will develop chronic TMD.

Traditional Chinese Medicine is a methodology of complementary Medicine. A contemporary understanding of TCM is that it consists of a model of System Biology based on a mathematical theory as shown in the I Ging and mathematically analysed by Leibniz (1646-1716). This model of system biology establishes a kind of diagnosis of its own which – from a western point of view – can be compared to a functional vegetative state of the patient. This functional diagnosis of TCM results in a treatment e.g. by acupuncture, pharmacology, manual therapy (tuina), dietetics, exercises conditioning vegetative and emotional effects (Taiji-qigong) or PTTCM (psychotherapy of TCM).

Acupuncture is the most well-known technique of TCM with pain relieving and anti-inflammatory effects. Studies on acupuncture show some methodologic problems, such as (1) the allocation of correct acupoints to the complaints, (2) double blinding and (3) objectively evaluating acupuncture effects. We have already established double blinding in acupuncture and evaluation of effects are possible in TMD by a variety of parameters. We have shown in other double-blinded studies that basing acupuncture on a correct TCM diagnosis may augment effects even by the factor 2. However, one western medical diagnosis may cover up to six or eight TCM syndromes.This means that one standard treatment for all TMD patients may only be optimal in 1/6 or 1/8 of the cases. In order to optimize study outcomes, TCM diagnosis must appear as an inclusion criterion for the studies to measure the effects of a treatment concept for one diagnosis. In global, we attempt to identify which TCM diagnosis is or diagnoses are more frequent in patients with TMD. Including TCM diagnosis as an inclusion criterion of TMD, we enable future studies about the effect of acupuncture in TMD to provide results which are more reliable and precise.

Objectives

To evaluate the most frequent TCM diagnosis/diagnoses in TMD in order to create a study design for a convincing prospective randomized double-blind controlled study of clinical acupuncture effects.

Material and Methods

After approval by the Ethical Committee of the Medical Faculty of the University of Heidelberg and an informed consent according to the Helsinki Declaration had been obtained n = 28 patients were recruited from the Department of Prosthodontics of the Heidelberg University Clinic with an independent diagnosis of TMD according to the given scientific criteria.
Patients were diagnosed according to the Heidelberg Model of TCM as described in the background section and documented by the Heidelberg documentation sheet as shown in the attachment. Tongue diagnoses were accomplished by two examiners independently and integrated into the diagnostic process.
Diagnosis was categorized in four parts as defined by the Heidelberg model, the constitution, agent, orb ("organ pattern") and the guiding criteria. Frequency of findings in these four parts of diagnosis were listed and represented in bar graphs.

Inclusion criteria: TCM diagnosis as described above, TMD diagnosed by an independent dentist of the University Clinic of Heidelberg, written informed consent after approval by the Ethical Committee.

Exclusion criteria: lack of cooperation, health condition with contraindication to acupuncture, prior acupuncture treatment

Results

Constitution: 27/28 patients (96%) showed cardiac constitutional signs. In 26 cases a combination of cardiac signs with yin deficiency signs was observed (96% of the Cardiac patients). Out of these cardiac constitutional types, 24 (89%) had felleal constitutional signs accompanying the cardiac constitution. These felleal constitutional signs referred to the personality type with suppressed ira or anger.
One patient (4%) had Pulmonar constitution.

Internal pathogenic factors (agents): Two patients had no apparent signs of external agents, but showed signs of emotional dysbalances (internal agents) only. Twenty-six patients (93%) showed mixed pictures of both external and internal pathogenic factors.

Twenty four patients (89%) showed signs of ira or suppressed ira representing challenges of impulse control, frustration or chronic psychosocial conflict situation.

All patients with anger (ira) showed felleal organ pattern signs accompanied by pressure sensitivity of F21(GB21).

Maeror (grief) and Timor (grief) was present in 3 patients (11%).

None of the patients showed signs of excessive joy (voluptas) or over-thinking (cogitatio).

External pathogenic factors (agents): Twenty-one patients showed signs of cold (han, algor) which in our study therefore was the dominant pathogenic factor (78%). Fifteen patients with algor had also Humor and Pituita (71%) and nine patients (43%) presented with so-called wind signs (feng, ventus). One patient (4%) presented ardour venti signs, what can be associated to an inflammation process.

Orbs ("organ patterns"): Felleal (gallbladder) and stomach patterns seem to be the most frequent patterns in TMD. Felleal signs as the actual pattern of disease were seen in 24 patients (89%), in 15 patients the felleal signs were associated with stomach signs (56% of the felleal patients), 4/24 felleal organ patterns (17%) were accompanied by tricaloric (sanjiao) signs. Three (13%) showed tenuintestinal (small intestine) signs. In summary, felleal complaints were the most frequent actual organ patterns (89%), of which two thirds were accompanied by stomachal signs.

Guiding criteria: Twenty-two out of 27 cardiac patients (82%) showed signs of emptiness (depletion), which is a lack of so-called qi. Sixteen out of these patients (59%) presented with clear signs of heat (calor). And 26 (96%) showed signs of Yin deficiency. All cardiac patients had extima affection in terms of the fourth guiding criteria.

Conclusion

Based on our results, the most frequent diagnosis ,cardial constitution with yin deficiency and a felleal-stomachal imbalance as an orb pattern should be integrated as an inclusion criterion in the study with the following features: double-blinded, prospective, controlled and randomized clinical study in parallel group design, recruitment in the department of Prosthodontics of the Heidelberg University. According to the results, a suitable pattern of acupoints could be F21 (Gb21) combined with TK5 (SanJiao 5), S13 (St13) combined with IC10 (LI10) and C3 (Ht3) complemented by R3 and R7 (Ki 3 and 7). The control

intervention could consist of needling normal skin points two cun lateral of these points with the same intensity and technique.

A next step would be to create a study design to coorelate both MTC diagnosis and diagnosis according to the western RDC/TMD, allowing more accuracy in the definition of the sample and interpretation of the results.

Other methods of Chinese Medicine may be considered for the treatment of TMD according to this diagnosis. Insofar this study opens the way to more scientific work on Qigong, tuina, cupping and other methods of Chinese Medicine.

Keywords: Acupuncture, TMD, Heidelberg model, double blinding, PTTCM

Resumo

Dor relacionada com Desordens Temporomandibulares (DTM) é um grande desafio da medicina e representa uma das causas principais de dor orofacial de origem não-dentária. A etiologia das DTMs é considerada multifactorial, derivada de factores biológicos, comprtamentais, sociais, emocionais e cognitivos.

Estas desordens causam disfunção e/ou dor recorrente ou crónica na articulação temporomandibular (ATM), músculos e tecidos relacionados. A seguir à dor crónica lombar,as DTMs são a segunda condição musculo-esquelética responsável por dor e disfunção, afectando aproximadamente entre 5 a 12% da populaç\ao, com custos anuais estimados em 4$biliões nos Estados Unidos. Entre metade a dois terços das pessoas com desordens temporomandibulares procuram tratamento. Entre estes, aproximadamente 15% desenvolvem DTM crónica.

A Medicina Tradicional Chinesa (MTC) é uma metodologia da Medicina Complementar.

Uma compreensão contemporânea da MTC é que consiste num modelo de um Sistema Biológico baseado numa teoria analítica matemática mencionada no Livro das Mutações, o IGing e analisado por Leibniz (1646-1716). Este modelo estabelece um tipo de diagnóstico próprio, que visto sob um ponto de vista occidental, pode ser comparado a um estado functional vegetative do paciente. O diagnóstico functional da MTC resulta num tratamento através da acupuntura, farmacologia, terapia manual (Tuina), dietética, exercícios com efeitos no estado vegetativo e emocional (Taiji-Qigong) or PTTCM (psicoterapia em MTC).

A acupuntura é a técnica mais conhecida da MTC com efeitos de modulação da dor e anti-inflamatórios. Estudos no âmbito da acupuntura mostram algumas limitações na sua metodologia, tal como 1) a escolha de pontos adequados ao diagnóstico, 2) double blinding e 3) medição objectiva dos resultados. Já estabelecemos o double-blinding e a medição objectiva de resultados em diferentes parâmetros na ATM. Também mostramos já em outros estudos duplamente cegos que o uso da acupuntura baseado num correto diagnóstico pode aumentar os efeitos até um factor 2. Contudo, um diagnóstico médico ocidental pode cobrir até 6 ou 8 síndromes em MTC. Isto significa que um tratamento standard para todos os pacientes com DTMs pode ser apenas adequado em 1/6 ou 1/8 dos casos. O que fizemos neste estudo foi a identificação dos diagnósticos de MTC mais frequentes em pacientes com DTM. Ao incluir o diagnóstico segundo a MTC nos critérios de inclusão de DTM, torna-se possível em futuros estudos clínicos a obtenção de resultados mais precisos e significativos dos efeitos da acupuntura em DTM.

Objetivos

Avaliar o(s) diagnostic(o)s de MTC mais frequentes em DTM, com o objetivo de criar um desenho adequado para um consequente estudo prospetivo duplamente cego e controlado sobre os efeitos clínicos da acupuntura.

Material e Métodos

Após aprovação pela Comissão de Ética e obtenção de consentimento informado de todos os pacientes de acordo com a Declaração de Helsínquia, 28 pacientes n=28 foram recrutados e diagnosticados de acordo com os RDC/TMD pela Faculdade de Medicina Dentária da Universidade de Heidelberg na Alemanha.
Os pacientes foram diagnosticados de acordo com o Modelo de Heidelberg para MTC, como descrito acima e documentado usando a Folha de Documentação para Diagnóstico de Heidelberg. O diagnóstico da língua foi também documentado por dois observadores experientes de forma independente e integrado.
O diagnóstico foi categorizado em 4 partes como definido pelo modelo de Heidelberg: a constituição, agentes, orb (padrão orgânico) e critérios guia. A frequência dos achados em cada uma destas quarto partes do processo de diagnóstico foi registada e representada em gráficos.

Critérios de Inclusão

DTM diagnosticada por um dentista independente da Clínica Universitária de Heidelberg de acordo com os RDC/TMD.
O diagnóstico de acordo com a MTC como descrito acima.
Consentimento informado após aprovação pela Comissão de Ética da referida faculdade.

Critérios de Exclusão

Falta de cooperação, condições de saúde com contra-indicação para acupuntura, tratamento prévio com acupuntura.

Resultados

Constituição: 27/28 pacientes (96%) apresentaram sinais de constituição cardial. Em 26 casos a combinação de sinais cardiais com deficiência de yin foi observada (96% dos pacientes cardiais). Deste tipos de constituição cardial, 24 (89%) tinham sinais de constituição feleal, acompanhando os sinais de constituição cardial. Estes sinais feleais referem-se a um tipo de personalidade com ira ou ira reprimida.

Um paciente (4%) tinha constituição pulmonary.

Fatores patogénicos internos (agentes internos): Dois pacientes não aparentaram sinais de agentes externos, exprimindo apenas sinais de desiquilíbrio emocional (agentes internos). Vinte e seis pacientes (93%) apresentaram quadro misto de ambos agentes externos e internos. Vinte e quarto pacientes (89%) tinham sinais de ira ou ira reprimida, que significa dificuldades no control dos impulsos, frustração ou situação crónica psicossocial. Todos os pacientes com ira mostraram sinais de padrão da orbe feleal, acompanhados por sensibilidade do ponto F21(VB 21).

Maeror (tendência para comportamento depressivo) e Timor (ansiedade) estavam presentes em 3 pacientes (11%). Nenhum dos pacientes apresentaram sinais de voluptas (alegria excessiva) ou cogitatio (pensamento ruminante).

Fatores patogénicos externos (agentes externos): Vinte e um pacientes mostraram sinais de algor (frio, han), que se observou ser no nosso estudo, o agente externo dominante (78%). Quinze pacientes com algor também apresentaram Humor (humidade) e Pituita (71%) e nove pacientes (43%) apresentaram sinais de Ventus (feng). Um paciente (4%) apresentou Ardor Venti, que pode estar associado a um processo inflamatório.

Orbes (padrão orgânico): Os padrões orgânicos felleal (Vesícula Biliar) e stomachal (estômago) parecem ser os mais frequentes em DTM. Sinais feleais como actual padrão da doença foram registados em 24 pacientes (89%), em 15 pacientes os sinais felleais estavam associados a sinais da orbe stomachal (56% dos pacientes com sinais constitucionais felleais); 4/24 (17%) destes pacientes apresentavam associados sinais tricalóricos (sanjiao). 3 (13%) com sinais da orbe Tenuintestinal (intestino delgado). Em suma queixas associados a padrões da orbe felleal foram mais frequentes, dos quais dois terços acompanhadas por sinais da orbe estomacal.

Critérios guia: Vinte e dois de 27 pacientes cardiais (82%) mostraram sinais de depletion (vazio), o que se refere a uma deficiência de Qi. Dezasseis destes pacientes (59%) apresentaram sinais óbvios de calor e 26 (92%) mostraram sinais de deficiência de Yin. Todos os pacientes cardiais apresentaram afetação da extima no que se refere ao 4º critério guia.

Conclusão

Baseado nos nossos resultados, o diagnóstico mais frequente, constituição cardial com deficiência de yin e um desiquilíbrio felleal-stomachal a nível das orbes deveria ser integrado como critério de inclusão no estudo posterior com as seguintes características: estudo cliníco duplamente cego, prospectivo, controlado e randomizado com recrutamento no Departamento de Prostodontia da Universidade de Heidelberg. De acordo com os resultados, uma escolha adequada de acupontos seria F21 (Vesícula biliar 21), S13 (Estomago 13) e C3 (Coração 3), usando a técnica dispulsiva ("leopard spot"). O grupo de controlo receberia a técnica em pontos 2 cun lateralmente aos referidos pontos, com a mesma intensidade e técnica.

Seria também interessante continuar este estudo procurando estabelecer uma coorelação entre o diagnóstico de MTC e o diagnóstico segundo os RDC/TMD da medicina ocidental, permitindo uma maior precisão na definição da amostra e interpretação de resultados.

Outros métodos da MTC devem ser considerados para o tratamento das DTM, de acordo com o diagnóstico. Em suma, este estudo abre uma porta para mais investigação científica na área do Qigong, tuina, cupping e outros métodos da MTC.

Palavras-chave

Acupuntura, TMD, Diagnóstico, Heidelberg Model, duplo-cego, PPTM

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List of Abbreviations

ALT	Algor laedens theory
NSAID	Non-steroidal anti-inflammatory drug
TMD	Temporomandibular Joint Disorder
TMJ	Temporomandibular Joint
TCM	Traditional Chinese Medicine
HM	Heidelberg Model

1. Introduction

1.1 Temporomandibular joint disorders (TMD)

Pain related to TMD is a great clinical challenge in dentistry and represents a major cause of non-dental pain in the orofacial region[1]. The aetiology of TMD is considered to be multifactorial, biologic, behavioural, environmental, social, emotional, and cognitive factors seem to play a role[2].

Temporomandibular joint disorders (TMD) are viewed as syndrome with many different symptoms that commonly result in facial pain. This disorder is relatively common, with around 33% of the population having at least one temporomandibular symptom including pain, difficulties to open the mouth and loss of quality of life [3,4,5]. It occurs mostly in people aged between 20 and 40 years[6]. 3.6% to 7% of the population has TMJ disorder with sufficient severity to cause them to seek treatment[7].

These disorders cause recurrent or chronic pain and dysfunction in the jaw joint and its associated muscles and supporting tissues. After chronic low back pain, TMDs are the second most commonly occurring musculoskeletal conditions resulting in pain and disability, affecting approximately 5 to 12% of the population, with an annual cost estimated at $4 billion. About half to two-thirds of those with TMJ disorders will seek treatment. Among these, approximately 15% will develop chronic TMD [8].

Milet developed an epidemiological study of patients seen in TMD hospital consultation[9]. It consisted on a survey of signs, symptoms and prevalence, taking into account gender and age. In patients who sought medical help, it was concluded that TMD is more prevalent in females and up to 55 years old. Facial pain was the most frequently reported symptom and limitation of mouth opening occurred significantly before the age of 42. The most common sign was myofascial pain. Muscle pain was found in 93.75% of patients, disk displacement in 28.75% and arthralgia in 10%

Mazzetto found no correlation between age and severity of TMD, however there was a trend of greater severity in young adults (25-50 years). The incidence was superior in women[10].

TMD is a wide term covering acute or chronic pain, especially in the muscles of mastication, or inflammation of the temporomandibular joint[11] . The temporomandibular joint is susceptible to many of the conditions that affect other joints in the body, including ankylosis, arthritis, trauma, dislocations, developmental anomalies, neoplasia and reactive lesions. Symptoms usually involve more than one of the numerous TMJ components: muscles, nerves, tendons, ligaments, bones, connective tissue, and the teeth. Symptoms can include difficulty in biting or chewing, jaw pain or tenderness of the jaw, clicking, popping, or grating sound when opening or closing the mouth, reduced ability to open or close the mouth, a dull, aching pain in the face, dizziness, headache or migraine (particularly in the morning), neck and shoulder pain, blinking, ear pain, hearing loss and tinnitus.

Treatment of a patient with chronic facial pain includes analgesics, NSAIDs, an occlusal splint (bite guard), cognitive behavioural therapy, physiotherapy and surgery[12].

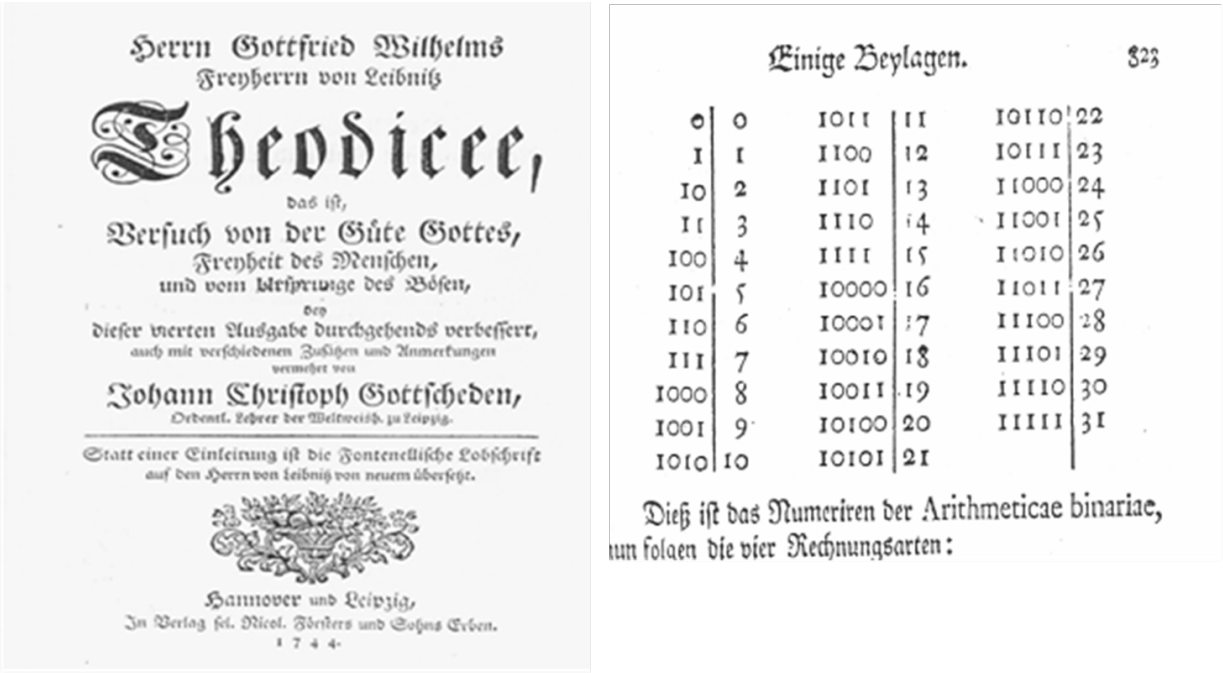
In a study conducted by the Orofacial Pain Prospective Evaluation and Risk Assessment (OPPERA) cooperative agreement in 2011, 1,633 TMD-free controls and 185 TMD cases completed a battery of psychosocial instruments assessing general psychosocial adjustment and personality, affective distress, psychosocial stress, somatic awareness, and pain coping and catastrophizin[13]. In bivariate and demographically-adjusted analyses, odds of TMD were associated with higher levels of psychosocial symptoms, affective distress, somatic awareness, and pain catastrophizing. Among controls, significant gender and ethnic group differences in psychosocial measures were observed, consistent with previous findings.

In a five years longitudinal study to estimate the effect of symptoms of depression and those of anxiety on the risk of TMD pain by Kindler et al[14], the Composite International Diagnostic-Screener (CID-S) and a clinical functional examination with palpation of the temporomandibular joint and the masticatory muscles were used. Subjects with symptoms of depression had an increased risk of TMD joint pain upon palpation and anxiety symptoms were associated with joint and with muscle pain

The last more recent four systematic reviews on acupuncture for temporomandibular joint disorders were read. All found evidence that acupuncture may be effective, but all stated that more (and larger, longer) high quality studies are needed to confirm acupuncture's effect in TMJ disorder. However, on these reviews no studies were found which followed TCM criteria as an inclusion criterion[15,16,17,18]

1.2 Traditional Chinese Medicine (TCM)

Traditional Chinese Medicine is a methodology of complementary Medicine. A contemporary understanding of TCM is that it consists of a model of System Biology [19] based on a mathematical theory as shown in the I Ging[20] and mathematically analysed by Leibniz (1646-1716) [21]. This model of system biology establishes a kind of diagnosis of its own which – from a western point of view – can be compared to a functional vegetative state of the patient. This functional diagnosis of TCM results in a treatment e.g. by acupuncture, pharmacology [22, 23, 24] manual therapy (tuina [25]), dietetics, exercises conditioning vegetative and emotional effects (Taiji-qigong [26]) or PTTCM (psychotherapy of TCM[27]).



Herrn Gottfried Wilhelms
Freyherrn von Leibnitz
Theodicee,
das ist,
Versuch von der Güte Gottes,
Freyheit des Menschen,
und vom Ursprunge des Bösen,
bey
dieser vierten Ausgabe durchgehends verbessert,
auch mit verschiedenen Zusätzen und Anmerkungen
vermehret von
Johann Christoph Gottscheden,
Ordentl. Lehrer der Weltweish. zu Leipzig.
Statt einer Einleitung ist die Fontenellische Lobschrift
auf den Herrn von Leibnitz von neuem übersetzt.
Hannover und Leipzig,
In Verlag sel. Nicol. Försters und Sohns Erben.
1744.

Einige Beylagen. 823

0	0	1011	11	10110	22
1	1	1100	12	10111	23
10	2	1101	13	11000	24
11	3	1110	14	11001	25
100	4	1111	15	11010	26
101	5	10000	16	11011	27
110	6	10001	17	11100	28
111	7	10010	18	11101	29
1000	8	10011	19	11110	30
1001	9	10100	20	11111	31
1010	10	10101	21		

Dieß ist das Numeriren der Arithmeticae binariae,
nun folgen die vier Rechnungsarten:

Fig. 1. The system of binary numbers developed by Leibniz based on the IGing

1.3 Acupuncture studies and methodologic problems

Acupuncture is the most well-known technique of TCM with pain relieving and anti-inflammatory effects [28]. Studies on acupuncture show some methodologic problems, such as (1) the allocation of correct acupoints to the complaints, (2) double blinding and (3) objectively evaluating acupuncture effects. We have already established double blinding in acupuncture[29, 30, 31] and evaluation of effects are possible in TMD by a variety of

parameters. We have shown in other double-blinded studies that basing acupuncture on a correct TCM diagnosis may augment effects even by the factor 2. However, one western medical diagnosis may cover up to six or eight TCM syndromes. This means that one standard treatment for all TMD patients may only be optimal in 1/6 or 1/8 of the cases. In order to optimize study outcomes, TCM diagnosis must appear as an inclusion criterion for the studies to measure the effects of a treatment concept for one diagnosis. In global, we attempt to identify which TCM diagnosis is or diagnoses are more frequent in patients with TMD. Including TCM diagnosis as an inclusion criterion of TMD, we enable future studies about the effect of acupuncture in TMD to provide results which are more reliable and precise.

2. Taking the Diagnosis

n = 28 patients presenting with TMD and diagnosed by independent dentists were recruited by the Department of Prosthodontics of the Heidelberg University Dental Clinic after approval by the Ethical Committee and an informed consent according to the Helsinki Declaration had been obtained.

TCM assessment was performed by two independent examiners. The first was an independent dentist with University based training of TCM. He examined the patients and documented the findings on a so-called documentation sheet of Heidelberg School of Chinese Medicine (see Attachment).

A second independent examiner established the diagnosis by tongue photos and was blinded to the outcome of the other examiner. Pulse diagnosis was established according to the so-called absolute method [32].

The collection and hierarchy of signs and symptoms was based on the so-called Heidelberg Model of Chinese Medicine. In brief, four components of diagnosis are obtained according to precise rules: constitution, pathogenic factor, orb ("organ pattern") and guiding criteria.

The frequency of findings in these four parts of diagnosis was listed and is represented as a diagramme in Fig. 2

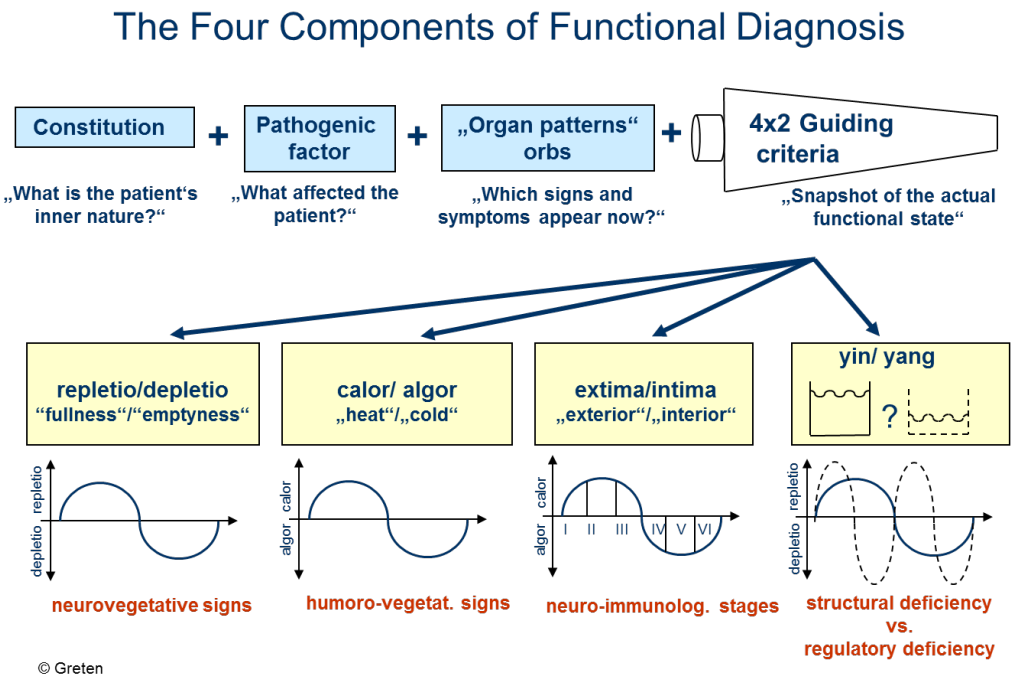


Fig. 2. Components of a TCM diagnosis (adopted from Greten)

3. The four components of a TCM diagnosis

The rules for establishing a Chinese medical diagnosis is almost exactly defined[33] and it was shown that choosing acupoints according to this kind of functional diagnosis can double therapeutic success in different experimental setups[34,35,36,37,38].

Insofar one could either individually select the appropriate points to be used per patient or homogenise the sample by setting a specific TCM diagnosis as an inclusion criterion. The later decision would enable the examiner to use a fixed combination of acupoints which is desirable in order to define appropriate controls: the same number of needles in the same acupoints and the same stimulation should be used in both verum and control intervention to exclude an experimental outcome influenced by the "dosage of poking". Experiments with shallow needling versus deep insertion can be considered inappropriate controls for this reason[39]. However, it was possible to even double-blind immediate effects of acupuncture by comparing the same number and stimulation techniques in acupuncture points when the verum points were allocated according to the TCM diagnosis and the control points were also acupoints but chosen for other inappropriate therapeutic target effects.

Therefore we were facing the problem of adequate acupuncture controls in experimental studies on TMD by a pre-study quantifying the Chinese diagnoses in the sample of patients (n = 28) presenting with TMD at the Department of Prothodontics of the Heidelberg University. The purpose of this is to define the appropriate inclusion criteria to select patients with one TCM diagnosis only in order to be able to use diagnosis-dependent points in an experimental double-blinded study. The design of this study is the study presented to the scientific community within this paper.

How to Establish a Chinese Diagnosis

The middle part of the documentation sheet refers to the usual findings of history taking in Chinese medicine.

The Chinese diagnosis consists of four parts:

- Constitution
- Agent
- Orb
- Guiding criterion

All these parts should be defined before starting a therapy. Fortunately there are specific rules for each part, an organigram or decision-making pathway. This means, however, that we take apart the wholeness of the diagnosis and the feelings of the patient and divide the findings and sensations into four categories, the parts of the diagnosis.

When you have established all four diagnostic parts, do not forget that you will normally not treat all at the same time. Some part of the diagnosis has to be treated more intensively. This normally can be found out by defining the patient's individual **most bothering complaint**. The reason why we do so is that we assume that "bothering" comes from the **deviation from the individual target value**. We treat what is bothering most under the assumption that this sensation represents the most deviated function in the patient and therefore the **most**

severe dysfunction. Like this, unlike to western medicine, the individual subjective sensation leads the way to the individual dysfunctional pattern. So the symptoms are not our enemy but our road panel to the most exact treatment.

Besides the hints that we have given for tongue and pulse diagnosis, we point to some practical decision-making techniques to establish the four parts herewith. We suggest that the documentation sheet provided is used. Please note that the upper part consists of **findings**, the middle part consists of the **four diagnostic modules** themselves. The lower space is reserved for acupuncts that would fit to the modules defined in the upper parts, i.e. the **treatment concepts**. After all those parts have been established, this means that a certain number of acupoints have been suggested among which you select the most suitable ones according to the most bothering complaint.

There are contradicting rule in Chinese medical practice about the **number of needles** to be used per patient. Some extremes suggest that only one specific needle should be used, others use up to a 120 needles. It is our opinion that the number of needles for treatment is not decisive, it is rather decisive that needling one part of the diagnosis does **not contradict** the needling of other parts of the diagnoses. For instance, in acute disease we normally find extimal affections, affections that have recently disturbed the conduit system by agents. In these cases, we will also have a constitutional diagnosis, but in most cases we will within the acute phase of the affection not treat the constitution in the first place but rather focus on the recent and acute complaints. In other words, the **orthopathic qi** (the “healing” qi) is directed to the site of affection. This orthopathic qi is rarely in abundance, as an excess of orthopathic qi is not thinkable. If you have orthopathic qi in abundance, this would contradict all disease and treatment would not be necessary. Under this assumption it is wise to focus on leading orthopathic qi to the site of the actual affection. Likewise, it would be nonsense to treat the yin, the constitution, Stage VI, at the same time as you would have to treat an acute splendor yang syndrome, a recent case, because you would mislead the orthopathic qi to the interior while it would be needed in the extima.

3.1 Constitution

If you do not recognise the constitution at first sight, there are two methods to establish a constitutional diagnosis:

3.1.1. The yin/yang method

For this purpose, you take the arbogram of orbs as a decision-making pathway.

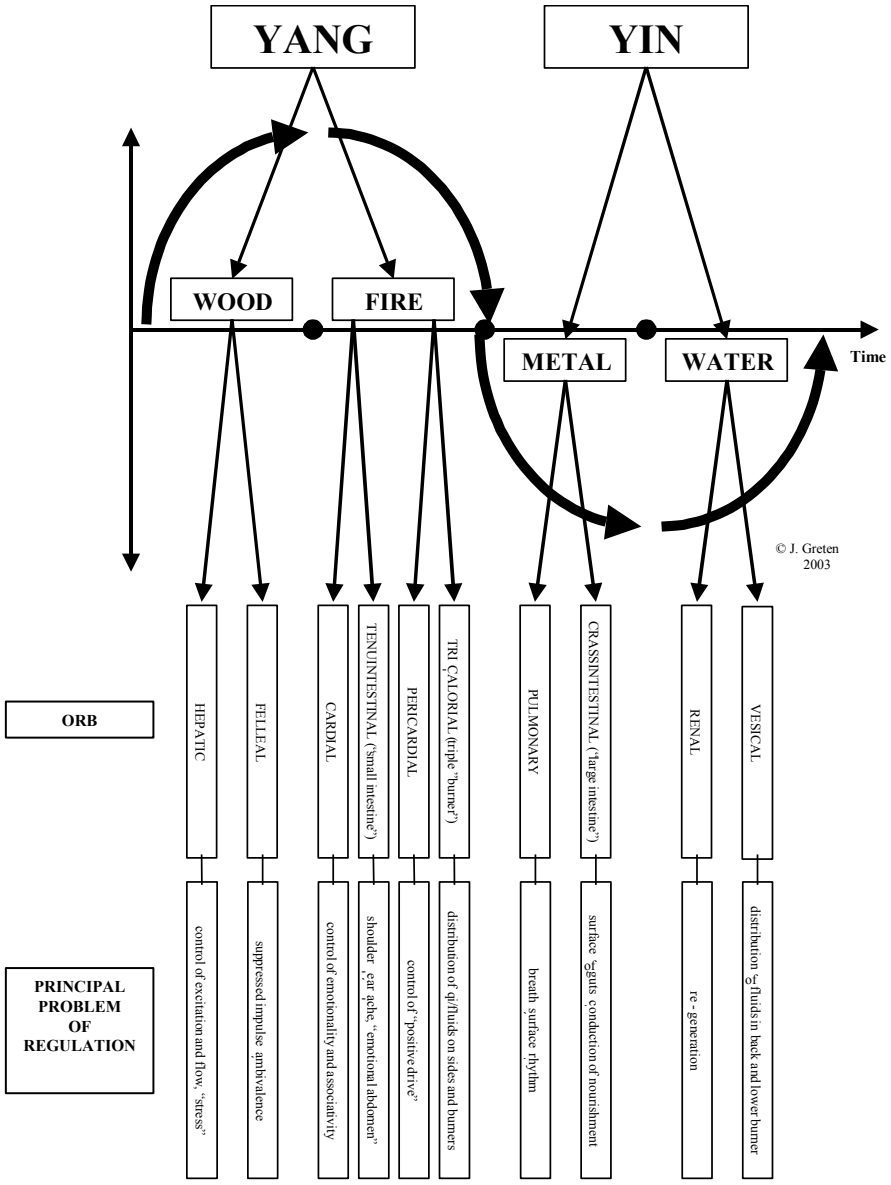


Fig. 3 Arbogram of orbs

The **first question** then is whether the patient is constitutively in a **yang or yin behaviour**. In the case of yang behaviour it is possible that this is **Wood or Fire** in nature. In the case of **yin behaviour** it is possible that this is **Metal or Water** in nature.

For instance, if you have a **yang type** you would further select signs and symptoms to determine whether the **direction is up-going (Wood) or down-going (Fire)**. These symptoms may include:

	Wood	**Fire**
Muscles	Activation of the extensor muscles Hypertone muscles	Muscular activation of the upper part of the body with excessive movement of the arms, the patient "speaks with the hands and arms" Hyperdynamic muscles
	Muscle activation more pronounced in the legs	The mimic muscles of the face follow all subjects of the conversation by the respective expression ("the cardiac orb opens to the face")
Voice	The voice in Wood is either metallic and carrying in nature (hepatic orb) or has a nagging undertone, a lot of "buts" in the phrases while the head is often in an oblique position (felleal orb)	The cardiac voice is speaking with a pronounced melody (melos) and the sound of the voice changes with the emotional expression due to the subject that the patient addesses to. It may therefore seem in maeror or even ira, but a closer look reveals that it is the intenstity of emotion which the voice expresses. The pericardiac voice is fast and logorrhoeic. The ratio of words per second is high. It may be even difficult to interrupt the patient. Note that pericardiac behaviour often shows chronic timor and anxiety in cardiac yin people.

Practical hint No. 1:

- Use the **mu-points** for diagnosis

Practical hint No. 2:

- In chronic Wood cases, **F 21** *(puteus alae)* is often very tense, in chronic Fire cases the cardiac orb is sometimes empty and **It 11** (*fossa infraspinata*) is often sensitive. In cases of doubt, compare these two indicator points.

- In the **yin types** (**Metal** and **Water**) the muscular patterns are both less active and the voices less loud and carrying.

	Metal	**Water**
Muscles	Loose muscles with loose posture and soft gait.	Upright and fragile gait. Seemingly muscular economic.
Voice	Sounds introverted and soft.	Voice has a dry and weaning sound.

Also use the mu-points for differentiation. In most of the cases of **renal** constitution, **V 40** *(medium lacunae)* or **Rg 20** *(conventus omnium)* is sensitive. In most cases of **pulmonary** constitution, **P 5** is sensitive. Please note that all acupoints are sensitive occasionally, and that we refer here to the point of highest sensitivity.

3.1.2. Differentiation by the axis and the hidden motives and themes of life

Method (2) distinguishes the constitutional types **according to their axis**. The average patient is easy to be diagnosed by Method (1), sometimes like in yin deficiency the symptom may be contradictory, e.g. yin deficiency may lead to a lack of yang and depletion. At the same time the patient may be cardiac in nature

with repletive symptoms. Accordingly, the symptoms are contradictory due to **calor depletionis**. In such cases it may be worthwhile to evaluate the patient by the predominant axis.

As a general rule, patients tend to react psychologically on one of the two **main axes.** This means that the emotional behaviour may shift from **maeror to ira** or from pulmonary to **hepatic or felleal behaviour**. On a more general level, people then tend to be either too symbiotic or over-autonomous. Therefore, they have difficulties in balancing the two poles of their personality, the pole needing community and care (the pulmonary symbiotic pole) and the pole needing autonomy in order not to get lost in symbiosis (you can easily be lost in symbiosis). If the patients´ hidden “inner question” seems to balance symbiosis and autonomy, they are most probably between Wood and Metal.

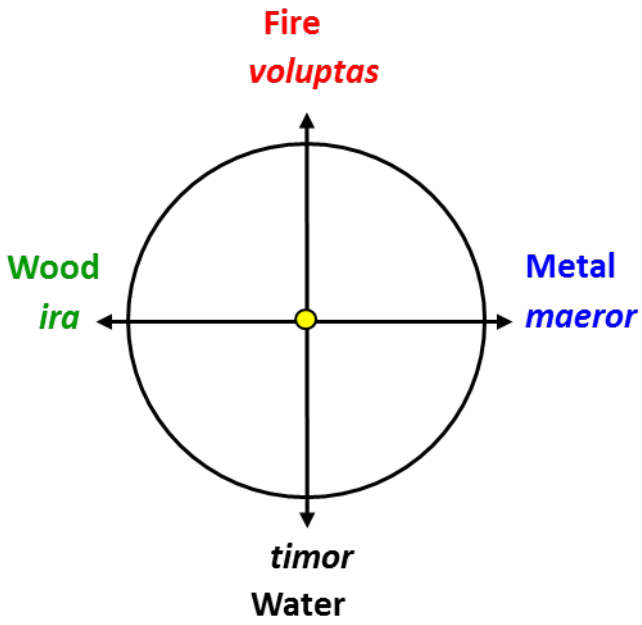


Fig. 4. The four phases and the internal agents ira, voluptas, maeror and timor

The other axis is between **Fire and Water**, resulting in problems of **over-emotionality** like losing the ground under the feet by over-joy, over-experiences, over-sadness. In other phases of their life there may also be a hyper-rational behaviour, avoiding anxiety which may be renal. Renal behaviour may range from

rationalising the own life and emotions up to being non-emotional or even unable to build up relations with a hypo-autistic relational behaviour.

Ask yourself whether the patient is between **symbiosis and autonomy** rather than between **over-emotionality and autism** to check the axis. Once you have determined the axis, yang behaviour points to the hepatic and cardial constitution, and yin patterns point to pulmonary or renal patterns.

Distinguishing the emotional behaviours of constitutional types may be complex due to the vast number of orb signs that you possibly see. A picture representing the “beliefs” and requirements of the constitutional types is given in an old saying:

- the hepatic type would love to live in an arena
- the cardiac type wants to live on stage
- the pulmonary type searches for life in a sanatorium
- the renal type would love to live in a fortress, searches security

In a social context, the hepatic type is the entrepreneur or pragmatic leader, the cardiac type is the creative and chaotic person, the pulmonary type is the understanding teamer and the renal type cares for sustainability through administration. The felleal type is the differentiator who may get lost in details, the pericardial type is the hyperactive person, sometimes stepping on the nerves of the others. And the yin deficiency type often is the reliable person who lacks flexibility up to being compulsive as yin deficiency may lead to constancy or to putting up a highly constant life style to cope with the inner changes of the patient by establishing a compulsive order within life.

Please also note that yin deficiency may be part of the constitution. This is indicated by periodic occurrence of symptoms, by a small tongue and by a low ratio of flesh to bones.

3.2 Agent

Emotional affections are frequent and the most common reason for chronic disease. The external agents can be determined by an organigram comparable to the organigram of the constitution. As algor, humor and ventus are the most frequent external agents. We divide them up into yin and yang agents. **Yin agents** are **algor** and **humor**, a frequent **yang agent** is **ventus**.

The site of pain or affection of the patient may be **warm**, **tense** and **sweaty**. This points to the **yang agent ventus**, or on the contrary, it may be **cold**, **swollen** and **dull**, which points to the **yin agents algor** and **humor**. The key difference between algor and humor is that the major finding is **tearing pain** and **cold sensations** in **algor** and **swollenness** and **dull sensation** in **humor.**

Yang Agent	**Yin Agents**	
ventus	**Algor**	**humor**
Signs and symptoms as if you had been exposed to a draught of air, such as • warm skin • spastic muscles • running nose and eyes, reddish mucosa • pain with sudden onset From a western medical view, these signs may originate from mast cell-substance P reflexes and old reflexes of motor control as known from fish and other species.	Signs and symptoms as if you had been exposed to environmental cold, such as • cold skin • stiff (uncompliant) muscles • tearing and localised pain • pain with gradual onset From a western medical view, these signs may originate from regional deficencies of capillary blood flow.	Signs and symptoms as if you had been exposed to environmental humidity, such as • mild sweating with glueish, slippery skin • swollen limbs and tissues • dull feelings • feeling of heaviness • generalised pain From a western medical view, these signs may originate from pre-oedema and oedema.

Table: Arbogram of yin/yang agents

To facilitate diagnosis taking, the more precise criteria of the external agents are already listed in our documentation sheet. One may therefore mark the site of affection in the two figurines in the centre of the sheet and then connect them to the encircled agent by which these sites are affected.

When using such an arbogram of diagnostic evaluations, please make sure to understand that the evaluation is not absolute but relative: rather warm than cold feelings point to yang, rather sweat than dullness points to yang etc. This means that naturally all bodies are not really cold and not really hot, but warmer or cooler than we normally expect them to be.

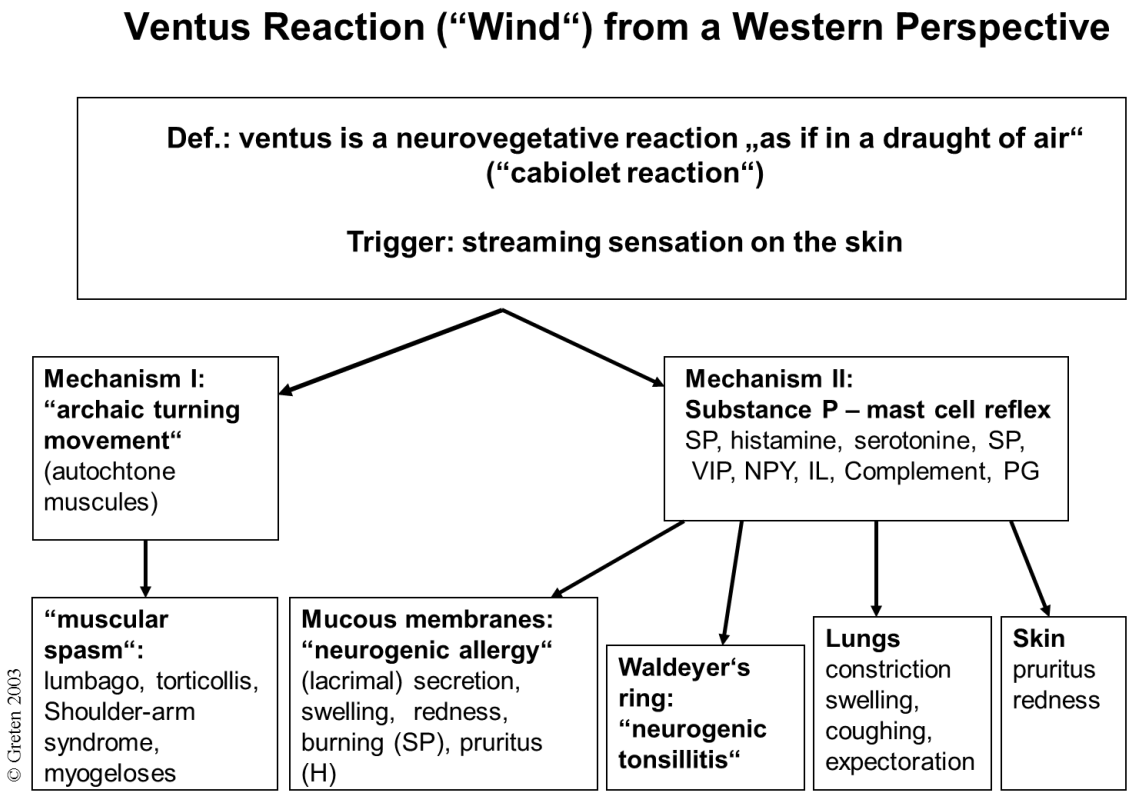


Fig. 5. The external agent ventus ("wind", "draught of air"). manifests in signs and symptoms as if you had been exposed to a draught of air, such as running nose and eyes, reddish mucosa, swollen tonsils, spastic muscles, pain with sudden onset. From a western medical view, these signs may originate from mast cell-substance P reflexes and old reflexes of motor control as known from fish and other species (adopt. from Greten) [40]

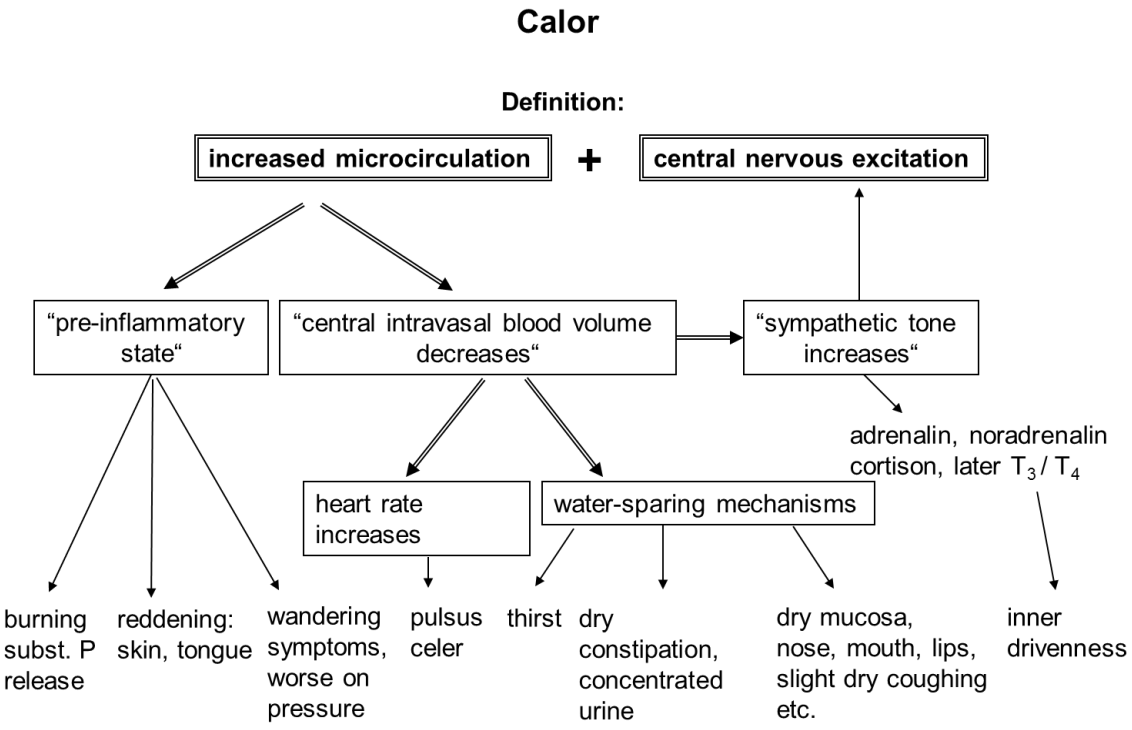


Fig. 6. The pathophysiology of calor

3.3 Orb

Defining the orb to be treated may be the biggest challenge in Chinese medical diagnosis, as an orb may show **directly** by its known **functional pattern** and also **indirectly** in the case of an **antagonist** problem. For instance, **labile pulmonary qi** may show in the occurrence of hepatic signs such as pruritus or calor on the skin. Therefore, two methods are the most successful to avoid primary errors.

3.3.1 Defining the orb by the location of complaints

An **orb** consists of a **functional pattern**, a **conduit** and **related tissues**. Very often **complaints within the course of the conduit** point to the orb. For instance, pain in the face often points to the stomach orb. The stomach orb "reigns" the

face. On the other hand, the cardiac orb opens to the face, so the tissue of the face is also attributed to the cardiac orb. The face is therefore located in two orbs which makes it sometimes difficult to find the right conduit for the treatment. In such a case one would see the overall of signs to evaluate the functional context of this location of pain or other affection. For instance, dullness, swollenness and symptoms of the gastric region, the knee joint, of the bowels would rather point to the stomach orb, emotional voluptivity, imbalance or circulatory problems with palpitations would rather point to the cardiac orb. On overview of locations that point to certain orbs is given in the following.

- If the site of affection is located in the **course of a conduit**, it is defined to be in the “respective” orb.

- Certain tissues are part of the orb. Their functional state is affected by the orb functions, and therefore location in a **specific tissue** is regarded as being within the orb.

Examples:

Hepatic orb:	muscular tissues tendons the eye region of the liver
Felleal orb:	eye and the region of the gallbladder and the corresponding region in the other hypergastrium inguinal region as it is connected by the s. zonalis
Cardiac orb:	Face tongue (the “prolonged heart”) axilla region of the “Five Hearts” (soles and palms and a spot on the sternum)
Pericardiac orb:	similar to cardiac orb, except the tongue and the axilla body region: centre of the chest[1]
Tenuintestinal orb:	outer ear mamma milk ducts, as the tenuintestinal orb is associated with lactation (see also DD)
Tricaloric orb:	no specific region of the body no specific tissue, but differences in side, intima/extima and between the calorics
Pulmonary orb:	Skin airways nose
Crassintestional orb:	outer parts of the nose (cf. the conduit) face (splendor yang together with stomach orb)
Renal orb:	Soles anus lower back, e.g. the os sacrum
Vesical orb:	region between the eyes neck (see DD) urethra (also felleal orb) bones teeth hair ears
Stomach orb:	oral cavity gastrointestinal tract
Lienal orb:	Lips centre of the abdomen rather corresponds to disorders of digestion and metabolism than a specific region

Functional regions of the abdomen are also involved (see picture).

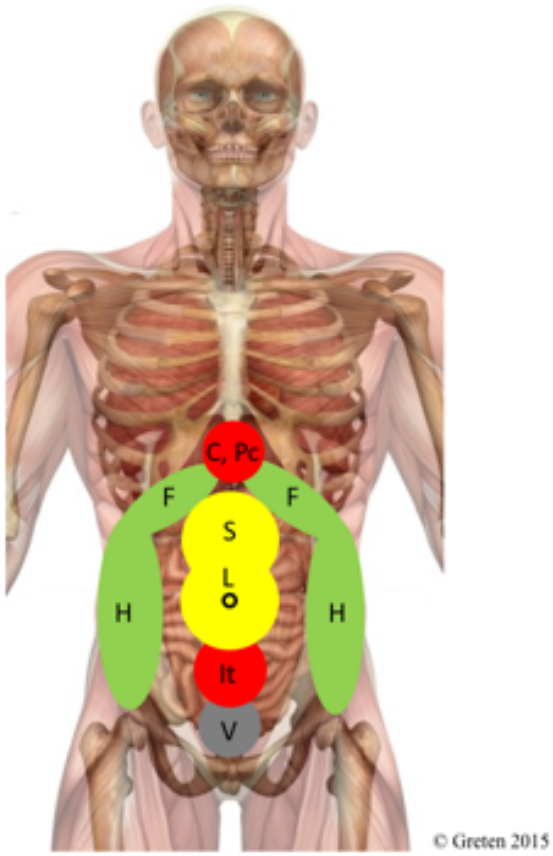
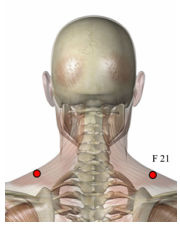


Fig. 7. The picture shows a belly with the umbilicus as a landmark. The projection of the **colon** is normally affected by the phase of **Wood**, the hepatic or felleal orb, because the phase Wood can overwhelm **Metal** to which the colon belongs.

Less precise is the **attribution of joints** to certain conduits. From experience we know that in most of the cases the following joints have primary relations to disturbances of the following conduits

As more than one conduit passes over most of the joints, this is inaccurate and only meant as a help for beginning the practice.

From top to bottom:

Head	
Jaw	Mostly felleal conduit Secondarily stomachal conduit
Atlanto-occiputal joint	Vesical conduit and Regens Note: ventus points to F 20 decompensation of stress to the stomach conduit
Trapezius pain	Felleal or tricaloric conduit Note: Trapezius pain is often related to emotional tenseness, such as ira
Levator scapulae	Tenuintestinal conduit Note: Levator scapulae and rhomboid pain is often related to cardiac over-intensity, such as in computer neck and shoulder syndrome, the sensory organs play a major role (picture)
Rhomboid pain	Tenuintestinal conduit See also levator scapulae
Shoulder	May be affected by all three extimal conduits
Elbow/tendonitis/golfer's arm syndrome	If it is related to a problem with a computer mouse, mostly pulmonary and crassintestional conduits
Pararheumatic pain in the knuckles	Renal conduit
Pararheumatic pain in the distal joints of the fingers	Tricaloric conduit (yang minor)
Sciatic pain	Felleal conduit, use also Nux vomica or Gnaphalium
Sacral pain	Renal orb or indirectly vesical orb, use also Aeculus
Knee	Most frequently stomachal conduit
Ankle	Felleal conduit

3.4 Guiding Criterion

The guiding criterion is to be determined four times. The word criterion comes from the Greek word “crisis” which means chance and decision but also chance and danger. By the term criterion we normally refer to features that are the basis of a decision. The four guiding criteria therefore mean four decisions which may result in **eight basic evaluations** .

The only practically more problematic decision may be to distinguish between the **four kinds of yin deficiency**. Follow the following practical advice:

1. **Yin deficiency itself** may be compared to a **deficiency of the functional tissue** of the body (less parenchyma than needed). It is seen by a **small tongue**. In most cases is also the basis of **depletive calor** (heat which comes from a low amount of water in the basin).

2. **Xue deficiency** is often seen by **white gums** or the **TV sign**. It may result in **depletive algor** with **intent pulses** all over.

3. **Lack of body fluids** often shows in **dry skin and mucosa**. It is diagnosed by a dry texture of the tongue (**Vileda tongue**), **fissures** of the tongue and may lead primarily to **pulmonary** and **renal orb signs**.

4. **Jing deficiency** in most cases shows indirectly. It is either a congential disorder or lack of **basic reactivity** in **old age**, after **chemotherapy** or **radiation** or other **intoxications** (the nucleus of the cells wants to react, but cannot provide the usual functional repertoire of the tissue)

4. Orbs involved in TMD and their functions

4.1 The felleal orb (gallbladder)

The felleal orb represents the active complement of the hepatic orb (Phase Wood). The felleal orb controls and guides initiative and decision, controls all forms of qi and initiates functions. In classical Chinese texts one refers to the hepatic orb as the "General" and the felleal orb as the "Minister". The felleal orb therefore delays, administers and systematizes in a differentiating manner the impulses, the functional capacity (energy) of the hepatic orb[41].

If **algor** or **depletion** of the **felleal orb** are present[42]:

- Oppressive feeling in the chest and nausea
- Inner restiveness
- Lack of self-confidence
- Impaired vision and sensitivity to light
- Hypoacusia
- Vertigo
- Disturbed sleep
- Timidity,anxiety
- Irresolution,indecision

If **calor and/or repletion** of the **felleal orb** are present:

- Irascible, aggressive,arrogant behavior
- Pain in the temples
- Pain in the ears
- Tinnitus
- Oppressive feeling in the chest and in the midriff
- Coldeness or numbness of the extremities, particularly of the feet
- Migraine with nausea
- Pain associated to initiation of bowel movement

4.2 The stomachal orb

Belonging to Earth, the stomach orb has the function of digestion and assimilation of food as well as all cosmic and social inputs in the form of impulses, thoughts, moods, emotions which need to be “digested” by the individual. Orthopathy is the capacity of our system to return to a balanced state and is possible due to the eu-regulation of the phase Earth.

Algor on the stomach orb either by the ingestion of unboiled or cold sapors, or by exogenous algor, or in the wake of prolonged illness, an algor-heteropathy develops producing congestion and fullness of the centre of the body, tenseness, pain in the epigastrium better with warmth. If depletion occurs we will have diarrhoea and weakness of the lower limbs.

Reactive calor, i.e. this is an increase in the overall microcirculation in order to expel the agent algor of the stomachal conduit, produces symptoms like pain in the epigastrium, thirst and desire for cold drinks, vomiting, constipation, bad breath, toothache, painful and swollen gums, symptoms also present in case there is repletion of the stomach orb.

4.3 The tricaloric orb

Belongs to the phase Fire and is responsible for regulating the circulation of fluids. The balanced supply of structive fluids and the fluids balanced distribution is an expression of the tricaloric orb. Indirectly, the strength of the defensive Qi at the surface of the body depends on this distribution, so infections are related to affection of the Tricaloric orb, as well as unequal sensation of temperature between: left and right sides, interior/exterior, the three calorics, i.e. the three functionally grouped parts of the body.

Symptoms and signs arising from the **tricaloric conduit** may comprise[43]:

- shoulder pain
- pain in the finger joints
- pain in outer and inner ear
- pain and swelling of the cheeks

4.4 ALT- Stage III: yang minor (the smaller yang)

"yang minor expresses that the reactive calor (yang) is regressive so the agent is bigger (major) and the yang is minor. Another expression for this stage is the stage of the turning point (the hinge of a door) expressing

a) the agent goes in and out, the only stable is the turning point.

b) mathematically speaking you are close to the axis of the function which is a turning point too. This mathematical speculation was most developed in the 16th and the 17th century and will be returned to later.

Xue and qi derive from the interior and are led through the system of conduits. If the agent algor overcomes the xue flow within the conduit, this may lead to a reverse flow of xue into the interior. If there is a relative lack of reactive heat, the algor may further invade causing sensations of cold in the interior.

Often, xue from the inside (the yin) will be mobilised against the agent causing the sensation of internal heat again, or, if the agent algor is driven out, even temporary heat of the exterior, i.e. the skin (extima). It may be said that the agent algor and the flow of xue within the conduit play “Tom and Jerry”, driving each other in and out repeatedly (cold - heat - cold - heat)".

a) The felleal conduit

"Mobilisation of internal heat is a feature of the phase Wood (mobilisation of potential), and, as this is still an extimal stage, leads to affection of the felleal conduit

Anatomically, according to this, the stage Yang minor affects lateral aspects of the head, neck, shoulders, thorax, waist, hip and leg.

"Signs arising from **algor in the felleal conduit** may include:

- inability to lie on one side of the body (an extremely reliable sign!)
- hemicranalgia, sometimes resembling migraine
- loss of hearing
- tinnitus
- tearing pain of the eyes
- pain in the neck, on the chest,
- in the upper abdomen,
- low back pain
- coxalgia
- pain in the ankle

At a functional level, we have signs of the tricaloric and felleal orbs.

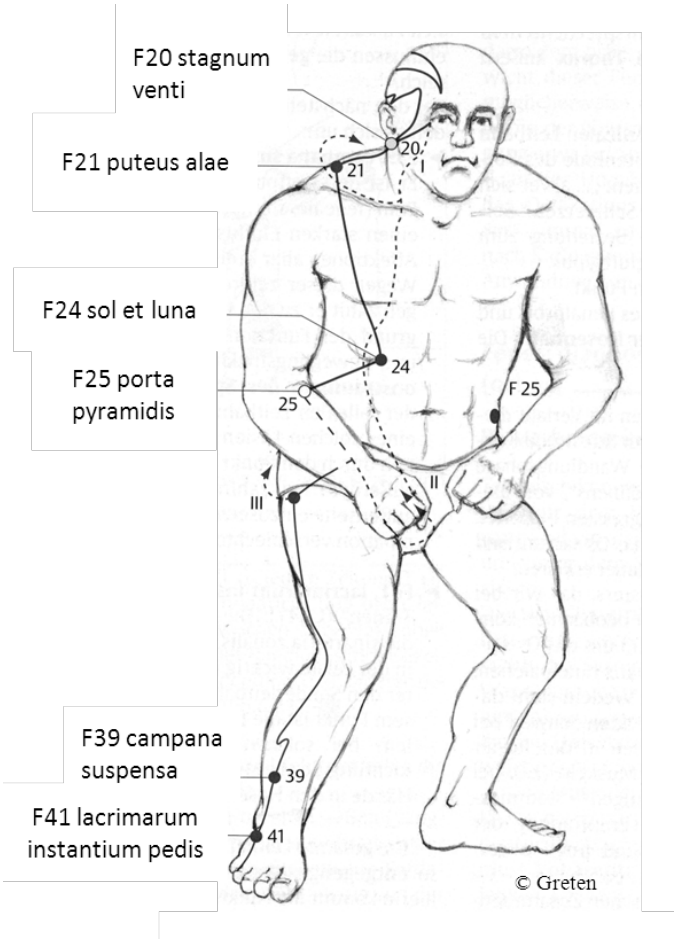


Fig. 8. Course of the felleal conduit (adopted from Greten)

b) The tricaloric conduit

This scenario also causes symptoms and signs of “imbalanced distribution” of energies, which is a principal affection of the tricaloric orb.

Symptoms and signs arising from the **tricaloric conduit** may comprise:

- shoulder pain
- pain in the finger joints"[44].

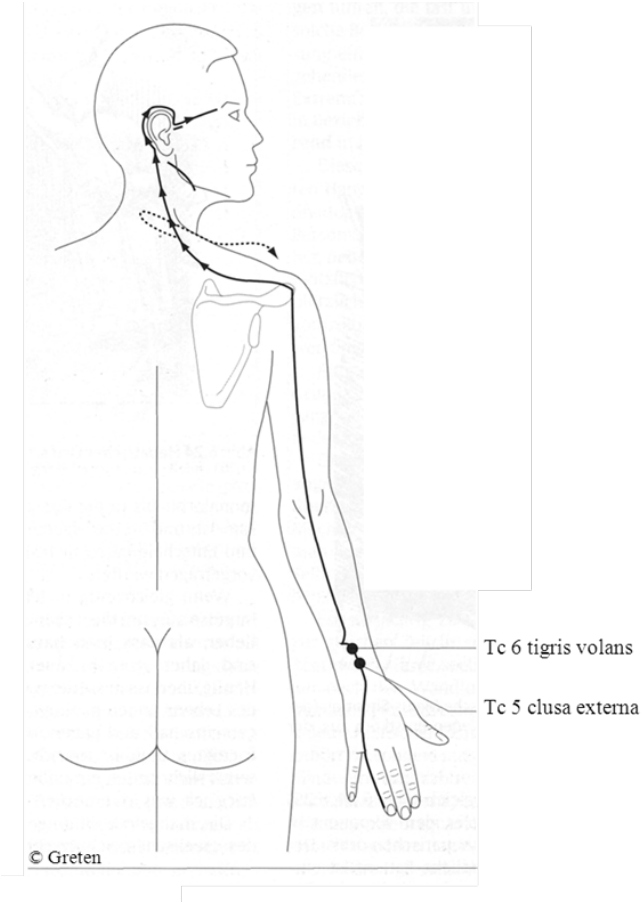


Fig. 9. Course of the tricaloric conduit (adopted from Greten)

5. Results

The results were analysed in regards of the four components of diagnosis as defined in the Heidelberg Model of Chinese Medicine. We were searching for the most frequent disease pattern according to Chinese Medicine among the TMD patients.

1. Constitution: Out of n = 28 (100%), n = 27 patients (96%) were considered to be of cardiac constitution. Out of these 27 constitutionally cardiac participants, n = 26 (96%) also showed considerable signs of yin deficiency of all four types (yin sui generis, xue, body fluids (jin ye), jing). Only one participant (4% out of the 28) showed a pulmonary constitution which is therefore to be regarded as an exemption.

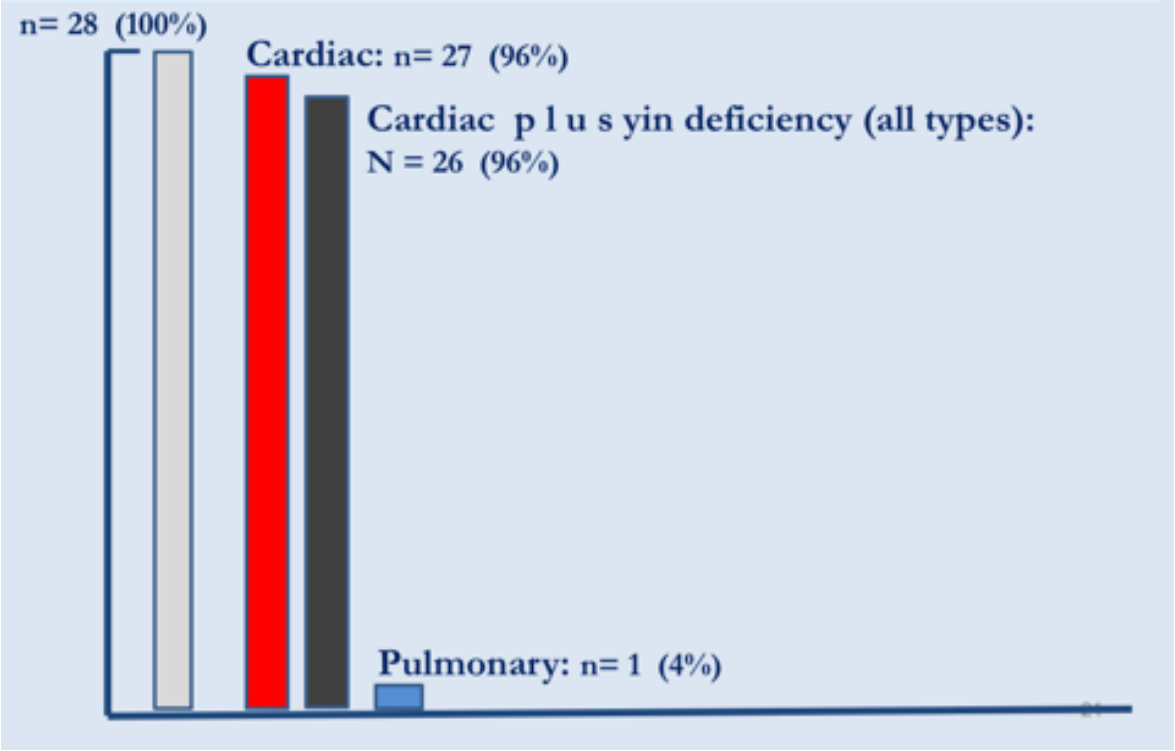


Fig. 10. Distribution of the sample according to constitution; 96% patients showed a cardiac constitution and the vast majority showed yin deficiency. This suggests emotional lability and emotional intensity according to the teaching of TCM. In western terms (Eysenck's model) this is the sanguine, unstable personality; in terms of psychoanalysis in psychotherapy this is analogous to oral narcissistic, histrionic or hysteric.

2. Guiding affection (emotion): of the 27 cardiac constitutional types, n = 24 (89%) were considered to have an iratic problem (anger) according to Chinese Medicine. This is compatible with a number of Western emotional descriptions like choleric, angry, frustrated, blocked life initiative and so forth as explained in the Discussion.

   N = 3 patients (11%) showed signs of grief (maeror). All 3 of these patients according to Western medicine were also showing signs of deep anxiety patterns (timor)

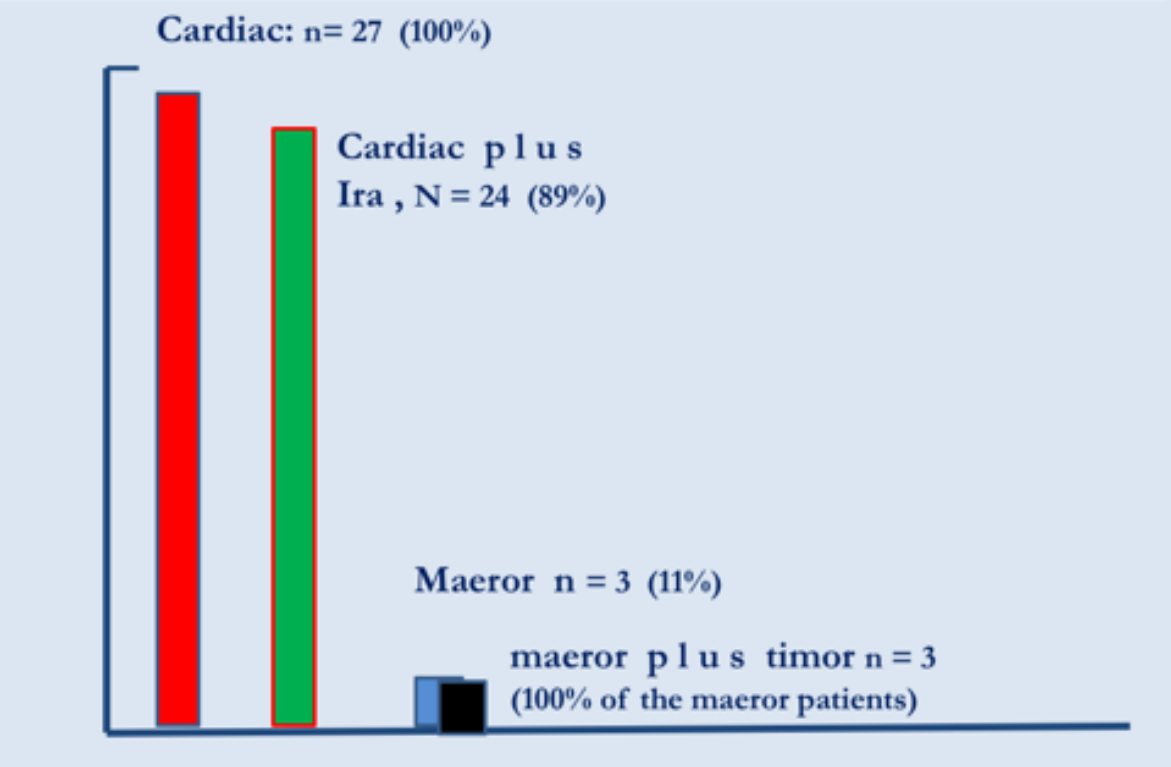


Fig. 11. Internal pathogenic factors (emotions); the vast majority of cardiac suffer from so called iratic emotional signs; this is roughly translated as anger, supressed anger, frustration. In PTTCM according to the HM this can be interpreted as a possible consequence of dysfunctional social behaviour, with the tendency to take over dysfunctional roles in hierarchical conflicts with frequent narcissistic devaluation.

External pathogenic factors: Out of n = 27 cardiac constitutional types (100%), n = 21 (78%) showed signs of cold (algor, han) which fosters the idea to use the Shang Han Lun theory of cold disease in these patients. Patients with cold (algor, han) frequently acquire moisture, phlegm (humor,

pituita). In our sample n = 15 (71%) out of 21 patients with cold (algor, han) were showing signs of these disease features. This is due to the Shang Han Lun theory frequent in Stage I, II, V and VI and interpreted as a residual sign of former affections and stomach patterns.

N = 9 (43%) of the cold (algor, han) patients showed additional signs of wind (ventus) which may be due to the gallbladder pattern affection as discussed later. Wind-heat patterns were seen in 1 patient (4%) of all cardiac patients examined. This result suggests the usage of moxa as a cold disease was seen.

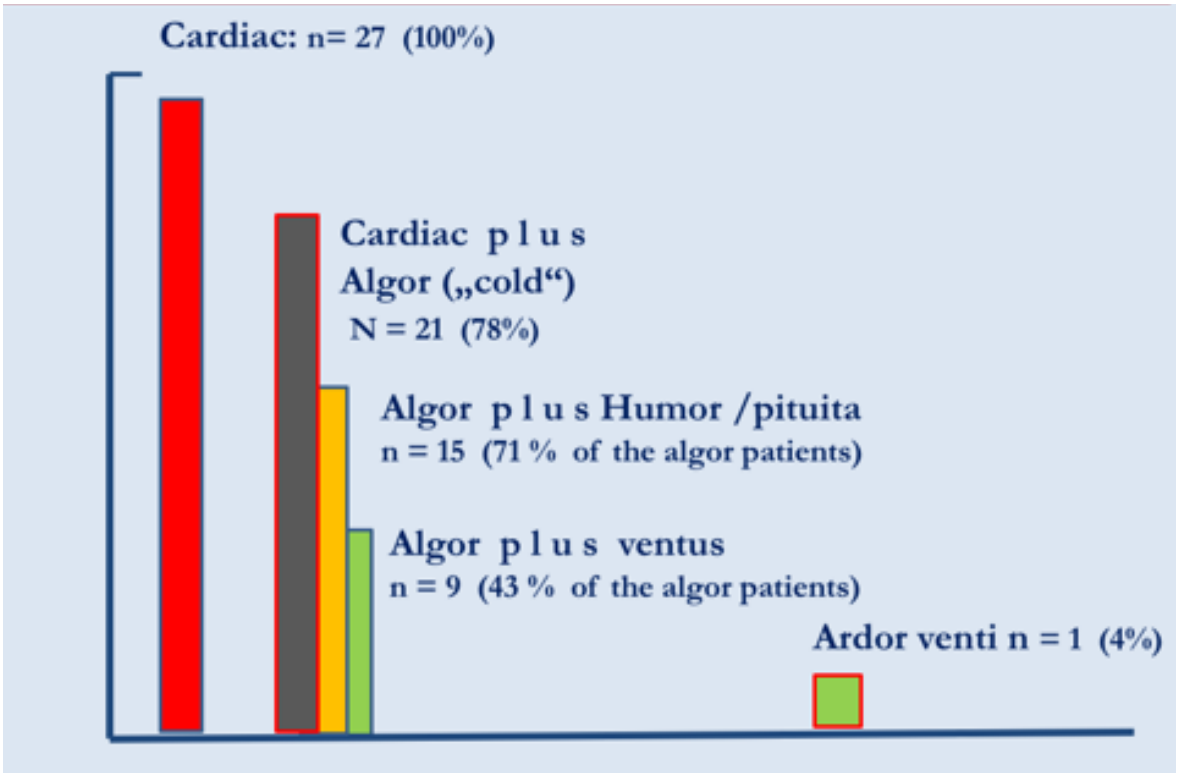


Fig. 12. External pathogenic factors. 78% of the cardiacs showed signs of han (cold, algor) which justifies the application of the theory of cold damage (Shang Han Lun, ALT); according to this teaching humor (“dampness”, shi) as a frequent consequence of the tai yang(yang major), yang ming(splendor yang), tai yin(yin major) stages which explains so many patients affected by this pathogenic factor. Humor in yin flectens, leading to pituita (tan).

3. Organ pattern (orb pattern): Wood-Earth imbalances in the sense of gallbladder- stomach imbalances are the most frequent pattern seen. Out of 27 cardiac constitutional types (100%), n = 24 (89%) showed gallbladder (felleal) patterns. The most frequent diagnosis: cardiac yin deficiency plus gallbladder pattern. Out of these 24 patients, n = 15 (56%) showed gallbladder plus stomach pattern signs. The movement of "growling" (see Discussion), bruxism and occluding the teeth are allocated to the felleal orb according to the Heidelberg Model and the ancient scriptures. Stomach pattern affection could lead to the allocation of mouth disease in general and is allocated to problems of opening the mouth according to our model.

   Less frequently seen were gallbladder plus triple burner (tricaloric) syndromes. N = 4 (17 %) may be an expression of the Shang Han teaching which couples the gallbladder (felleal) with the triple burner (tricaloric) conduit in the sense of Stage III (shao yang) disease. Felleal plus small intestine (tenuintestinal) patterns were seen in n = 3 (13%) of all gallbladder pattern (felleal orb) affected patients. This can be interpreted as a manifestation of the cardiac constitution which frequently shows small intestine (tenuintestinal) patterns in the sense of an affection of the phase Fire in yin deficiency.

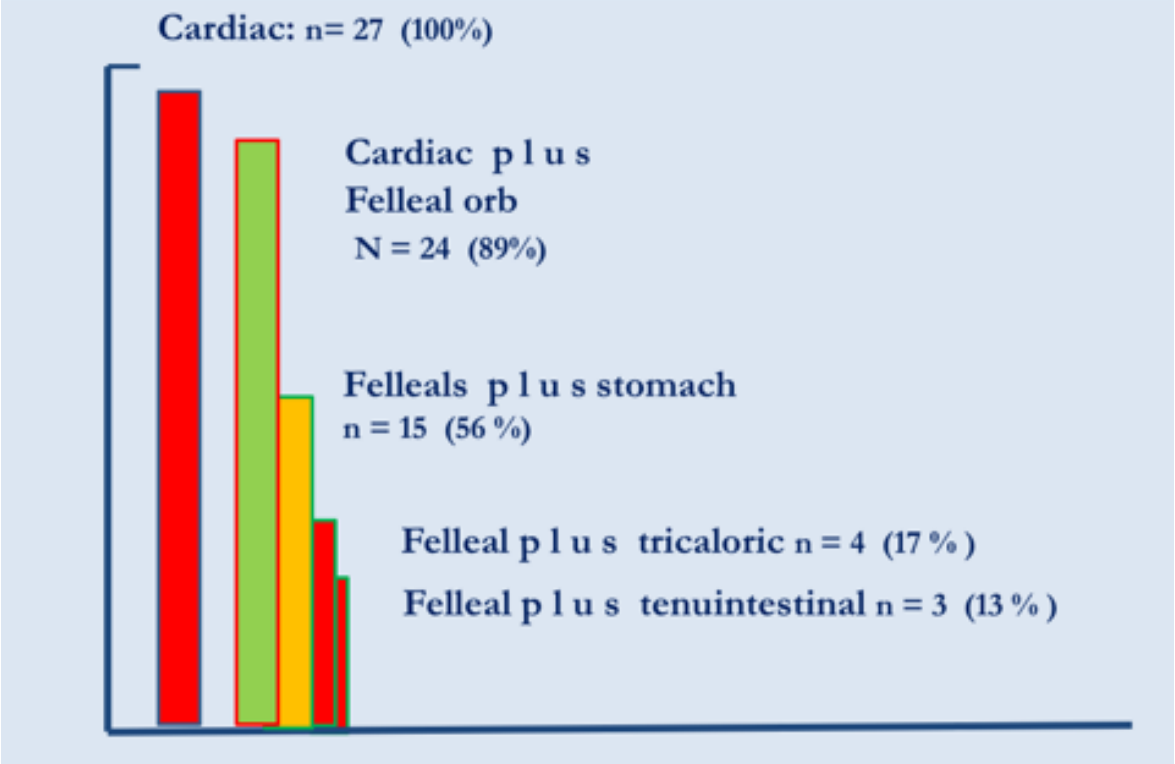


Fig. 13. Organ patterns (orbs). 89% of the cardiac constitution types in our sample also showed gallbladder felleal signs possibly as a sign of “supressed anger”; in the model of the phases wood-earth imbalances are a frequent consequence resulting in 56% of stomach patterns within this group. Tricaloric (triple burner) patterns frequently go along with gallbladder/felleal affections according to the Shang Han Lun; Tenuintestinal (small intestine) patterns are possibly due to cardiac constitution type.

4. Guiding criteria: Out of the 27 cardiac constitutional types (100%), we saw n = 22 (82%) being in emptiness (depletion) and n = 16 (59%) in heat (calor). By definition, a felleo-stomachal imbalance is to be regarded as an exterior sign according to the teaching of the Shang Han Lun. As a last guiding criterion, yin deficiency implicated regulatory lability according to our problem (see Discussion).

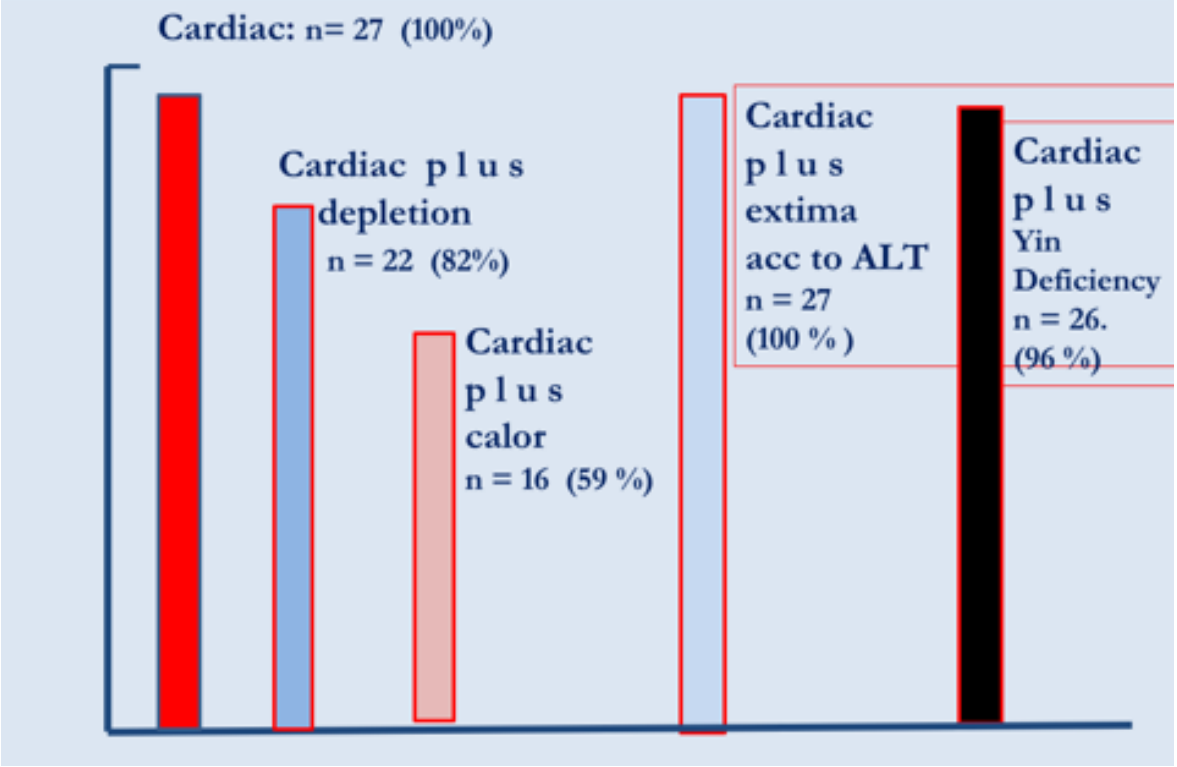


Fig. 14. Guiding Criteria. Emptiness/depletion is present in 82% of cardiac patients in our sample, this may be a consequence of taking over exhaustive dysfunctional social roles over long time.

Summary

Cardiac constitutional types with chronic conflicts, anger, frustration are frequently affected by TMD. It is noteworthy that emptiness (depletion) is a main feature which gives a hint to decompensation patterns of constitutionally-based exhaustion patterns with consecutive mind (spirit, shen) problems. This could be interpreted in the sense of a deficiency in psychological/emotional autoregulation of the individual affected by TMD.

We frequently see heat (calor) patterns that as a manifestation of the phase Wood foster gallbladder (felleal) signs, a certain drivenness and irritability caused by that.

6. Discussion

All studies have limitations and strong points. The obvious limitations of our study can be summarised in the following aspects:

1. **Sample size.** It is difficult to estimate the right sample size. However, in most clinical studies sample sizes of 30 per group are largely accepted. One could, of course, argue that valid sample sizes could be calculated taking into account the variance of symptoms. We can assume that taking into account the time limits of a master thesis, the ethical approval to be obtained and the logistic conditions under which the data were acquired, a sample size of 29 is a fair compromise between the feasibility under the circumstances and the scientific validity of the study purpose.

2. **Preselection**. The sample was recruited from the University Clinic of Heidelberg with Ethical Comitee approval and informed consent were obtained before collecting the data. Of course, this sample is a preselected sample which is not necessarily comparable to patients in an average clinic, as presumably more severe cases of TMD are referred to the University Clinic than to the average dentist. However, the data that we obtained would fully comply with our daily experience in the treatment of non-universitarian samples at the Heidelberg Clinic of Chinese Medicine. Insofar, by experience, the data match with experience and are large enough in number to allow a first assessment and to help defining inclusion criteria. The overwhelming presence of cardiac constitutions among the patients would also significantly change the acupuncture strategy so as to constitutionally treat the cardio-renal axis by acupoints like C 3 (mare minus) or, according to the ALT, C 3 and R 7, for example.

3. When we began the study, we were not aware of all possible developments that would show up during collecting and evaluating the data. Therefore, we did not correlate the data of TCM diagnosis with the objective findings as measured routinely by the Heidelberg University Clinic. These diagnosis according to RDC/TMD Criteria may correlate with parts of the TCM

diagnoses. Correlating these Western diagnoses with TCM diagnoses would in future potentially allow to refer the patients in whom a TCM treatment would be most promising directly to the TCM practitioner and therefore save time within the course of treatment once the full study that we intend to do would show respective results. Therefore, a future perspective to increase the usage of the data would be to correlate TCM diagnosis and Western diagnostic data for a more individual and successful treatment. The perspectives of the integrated TCM and Western therapeutic approach include the evaluation of TCM diagnosis modules by Western science.As a brief and preliminary discussion we would like to share the following ideas:

4. The most frequent cases of TMD in the sample we recruited were cardiac constitutional types that would for some reason show a lack of qi (emptiness or depletion). One could therefore hypothesise that TMD may originate from emotional exhaustion under an over-challenging lifestyle and the condition of chronic frustration and psychosocial conflicts.

   a) The cardiac constitution of Chinese medicine is comparable to a personality type in Western medicine. This personality type is prone to more intense emotionality. The ups and downs of emotional movements are therefore known to be more pronounced. In Western terminology this means that personality features which are called narcissistic, histrionic or hysterical are possibly more pronounced in TMD patients. The high frequency of ira and suppressed ira, according to Chinese Medicine, could be further evaluated by means of Western psychometric tests. This part of the diagnosis would in fact point to some tendency in compensating aggression, frustration and conflicts which may include an elevated irritability. This could mean that stress and emotional challenge by work could be one factor to be defined as a common viewpoint of pathogenesis in TMD in East and West.

      The term of ira also refers to inner impulses that are believed to be generated from the so-called *dao*. This concept is present both in Western psychopathology and Chinese medical thinking. It refers to something that

one could call a script of life or an inherent way (*dao*) that would be an integrative part of any personality. Both Chinese classical texts (Laotse, Tao Te King) and Western philosophy (Kant's categorical imperative) refer to something that we could call an even irrational call by your inner voice to self -realisation and an innerly felt obligation to become whole, well-rounded or "complete". These inner impulses are an integrative part of the drive of man to become him/herself. If these impulses are over-controlled, blocked by exterior limitations of daily life for too long, this may be referred to as blocked "life initiative" which is also one form of suppressed ira occuring frequently in TMD patients according to experience.

b) It would be interesting to see if logotherapy would be a useful psychotherapeutic approach. This therapy focuses on emphasising the "inner sense of life" as a means of health maintenance and maintenance of personal integrity[55].

Traditionally in China Qigong therapy is widely used along with other therapies as a psychotherapeutic instrument. Also this therapy could be interesting for TMD disorders, as it can relativize exterior conflicts and is believed to gain cognition of this inner way (*dao*) for your life script, thereby enhancing the organic and natural development of the individual by Qigong as a cognitive aid of self-cognition.

If TMD would have some correlation with an impairment of becoming yourself, it would make sense to add aids for the organic development of a person to the therapeutic repertoire in TMD.

c) The growling dog model refers to some part of the so-called Heidelberg Model of Chinese Medicine. This model is based on Chinese Medicine as a model of vegetative system biology of man. Within this model vegetative functional states are defined by the classic orb signs that we know from classic Chinese Medicine. Therefore TCM diagnosis would be helpful to define a neurovegetative status of the patient.

The so-called felleal orb pattern is compared to the body language of a growling dog. "Growling dogs do not bite" is an idiom which refers to the impulse control and aggression control that is involved in the gesture of growling which differs significantly from attack. Growling is the phase in which the dog is still controlling and reflecting the aggressive impulses before the attack. Insofar one could compare suppressed ira to an attempt to control aggression. It is therefore not surprising that the body language of a growling dog is comparable to the muscular functional movement features within TMD and bruxism. A growling dog has an enormous activation of the temporal muscles and the pterygoid muscles as to prepare the possible bite in an attack. To prepare defence and attack the dog would also stand with broadly extended paws and high muscular tension in all four limbs and a strong activation of the neck muscles. Insofar the trapezius of both sides which are parts of the felleal conduit are activated and the vertebral column is extremely tense. The teeth of the biting dog are in the opponent and the head must be prepared to serve as a hook for the whole body weight. Therefore tension in the vertebrae is common in felleal patients. Other activations of the felleal orb include sphincter Oddi tension like in the sphincter Oddi syndrome and lumbosciatic pain. Sticking to the model of the body language of a dog, this would mean that the muscles that waggle the tail do not waggle like in happiness but are hypertense like in growling shortly before attack. Insofar TMD is comparable to only one part of a more complete and whole muscular motional and emotional vegetative pattern that exists both in animal and man. TMD therefore is only part of a whole collection of indicative patterns that Chinese Medicine refers to as an orb.

d) **Qigong as a curative methodology**. We have formally shown that practicing Qigong induces vegetative changes and therefore is able to correct extended and overemphasised orb patterns like the felleal patterns in TMD. Insofar Qigong is a traditional vegetative biofeedback therapy that works via other Pavlov reflex [54] Qigong exercises are a cost-reducing and most probably effective means of therapy which in many cases has been

shown to be more effective than psychoanalysis or behavioural therapy according to our clinical experience at the Heidelberg Institute.

Although the body-mind concepts in Chinese Medicine differ significantly from most psychotherapeutic Western models, they still can be useful to help us understand human behaviour.

One of the main differences is that emotions in Chinese Medicine are believed to originate from the "body". According to a modern understanding of Chinese Medicine as system biology, this is due to vegetative regulation.

Constitutional types therefore can be regarded as vegetative reactivity types that tend to have a proper conflict behaviour. The emotional imbalances described by Damásio are a parallel to this theory. According to these Western studies, basic emotions originate from centres of the brain that are involved in the regulation of homoeostasis, a vegetative process.

A novel kind of psychotherapy was therefore developed in the early 1980s which is called PTTCM. According to the meta-theory of this therapeutic model, there are four kinds of intelligence that sometimes evaluate life and the situative context in four different ways.

The paralimbic system, which briefly can be described as the site where behavioural automatisms of various kinds sit, is attached to a couple of regions like the frontoorbital cortex where behavioural programs comparable to the so-called drives of Freud or the basic automatisms described by Konrad Lorenz originate. These automatisms lead to pre-set conflict patterns that can be divided up into hierarchical, territorial as well as bondage and distribution conflicts in man.

Cardiac constitutional types according to this therapeutic model[45] are known to predominantly have problems in hierarchical orders. Briefly one could say that is difficult for them in social behaviour to be a beta- or gamma-chicken rather than an alpha-chicken. They require more recognition than other constitutional types which leads to frequent narcissistic scars.

Our results could be interpreted as a hint to a typical traumatic story of the somato- emotional biography of TMD patients. According to this, a person who is highly emotional, but also highly vulnerable may be involved in conflict patterns in which sub-ordination, lack of self-determination, lack of creativity, over-formalism and so forth can subjectively be excessively perceived as traumatic.

The consequence is chronic conflicts which by the time cause mechanisms that are comparable to a growling dog, the image of a typical body language in ira and suppressed ira (chronic anger and frustration). This picture includes crampy temporomandibular and masseter muscles, pterygoid cramps and tension in the limbs so as to stabilise the trunk against violators or in fight, and an emotionally caused "waggling of the tail", a muscle pattern that shows the effect of anger in the lower autochthonous muscles of the lumbar spine like in sciatic pain or in coccygeal complaints.

This pattern of body language is very similar to what we refer to as a felleal or gallbladder pattern in Chinese Medicine. It is normally balanced by the power of the Wood-Earth balance and therefore this felleo-stomachal (gallbladder-stomach) balance is challenged to a great extent.

Over the time vegetative exhaustion develops which in Chinese terms is accompanied by emptiness or depletion. In other words, chronic depletion and chronic conflicts in a very special personality type may lead to TMD. This shows especially when the compensating mechanisms (here: stomach pattern) are exhausted over time. It indicates that Chinese Medicine as an ancient model of system biology[46, 47] may lead us the way to a systematic and therefore "holistic" understanding of dentistry.

7. Conclusion

Based on our results, the most frequent diagnosis should be integrated as an inclusion criterion in the study with the following features: double-blinded, prospective, controlled and randomized clinical study in parallel group design, recruitment at the Department of Prosthodontics of the Heidelberg University Clinic.

In our study we met the following points:

7.1 Allocation of acupoints

According to the results, a suitable pattern of acupoints could be F21 (Gb21), S13 (St13) and C3 (Ht3) needled with leopard spot technique. Since algor (cold, han) is the major external pathogen, that suggests combination of F21 with TK5 (San Jiao 5), S13 with IC10 (LI10) and C3 with R3(Ki3) or R7(ki7). The control intervention could consist of needling normal skin points two cun lateral of these points with the same intensity and technique.

F 21 (Gb 21) *puteus alae,* jiānjǐng

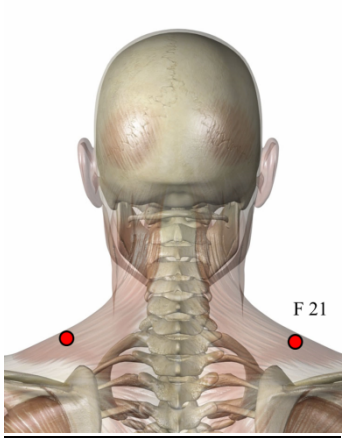


Fig. 15. The acupoint F 21

"Seat of the orthopathic qi", "fountain of the shoulder". This point is connected with the sinarteria retinens yang and both the tricaloric and crassintestinal conduit (cf. yang minor, stage III of the ALT) at the apex of the trapezius.

The name refers to the orthopathic qi, which is thought to flow out here. From a western point of view, this qi constitutes the functional compensation reserve protecting against dysregulation. So the point has balancing functions which is already apparent in its connections on conduit level. In many blockades of vertebrae or tension of the spine just pressing this point already causes relief.

Dispulsion

Dispulsion of this point dispels ventus which blocks the qi flow, cools calor and opens the waterways via the tricaloric orb. In this way the flow dynamics are activated. If an excess of yang rises via the s. retinens yang (an extraordinary conduit originating in the renal orb), this rising yang (and qi) is lowered. For this reason, it is also said to this point that the "orthopatic qi" is gathering in it.

In clinical practice this point is important especially in complaints worsened by stress symptoms such myogeloses or migraine (together with F 41 [Gb 41]). It is frequently used as an additional point for back pain and "frozen shoulder"[48].

S 13 (St 13) *ostium qi*, qìhù

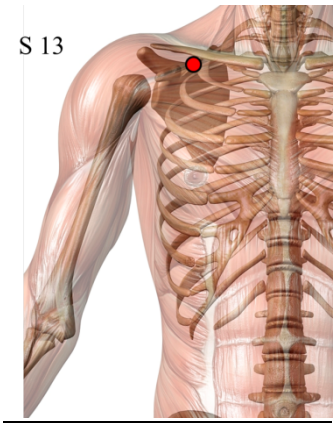


Fig. 16. The acupoint S 13

"Ostium qi means "door of qi". The name expresses that the foramen is considered to be an opening for the stimulation or development of individually specific active energy.

This point disperses humor venti and algor venti and is used against contravections.

It is used in intense, painful, spastic cough without expectoration, accompanied by pain in the chest and back, and loss of taste, tenseness in the chest and flanks, sometimes anhelitus (panting)." [49]

C 3 (Ht 3) *mare minus,* shàohǎi

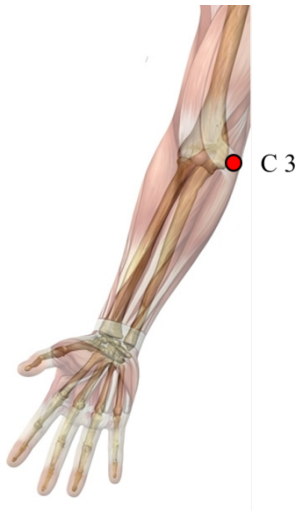


Fig. 17. The acupoint C 3

"This point is the conjunctory of the cardiac orb and therefore allocated to the phase Water.

It is used in labile **cardiac qi.** Labile cardiac qi can manifest as **shen problems** in cardiac constitutional types with phases of high on-stage presence followed by sudden failure in the control of everyday procedures like **forgetfulness**, **uncontrolled fine motorics** or **sudden changes in emotionality**. **Spontaneous sweating** by sudden lack of control over all circulating and moving body fluids such as sweat, predominantly on the palms and feet and on a little spot in the centre of the sternum **(“The Five Hearts")**, sudden hypotension up to collapse, heart rhythm problems and palpitations that come for no specific reason as they are due to spontaneous lack of qi content. Another indication are **logorrhoeic episodes** over the day by lack of associativity up to the **messy syndrome**.

This point can also be used in cardiomyopathies if at the same time the cardiac and pericardiac qi are supported, e.g. by adequate decoctions.

On the counter-phase, especially the renal orb, labile cardiac qi can show as menstrual problems or problems of acting according to one's own mind-will and conviction, a lack of mind-will (zhì).

On the extimal counter-orb we see reactive repletion of the tenuintestinal orb caused by relative depletion in the cardiac orb. This is frequent and may lead to tenuintestinal shoulder/neck pain or headache including migraine as a loss of control over the movement of xue. Differential diagnosis: over-challenge of the cardiac orb by monitor work, too many social contacts per hour and other reasons of depletion.

By strengthening the cardiac yin, this point also has a **sedative effect**. It dispells ventus (a yang agent) and makes the reticulares patent (cf. C7). This is the reason why it can also be used in headache, toothache, ventigo and other ventus-induced disorders of the respective body island.

Further indications are disorders in the course of the conduit like **tendovaginitis** (if pain increases on supination), **numbness of the arm**, **tremor of the hand**, **epicondilitis** etc.

Particularly children have an instable yin. Their cardiac qi is often used up in case of sensory over-excitation, high learning demands or life-phase related adaptation stress. Their cardiac qi is then more easily affected due to a cardiac structure deficit than in adults. A characteristic sign of this disorder is that along with the physiological reduction in the activity of the cardiac orb (consciousness) after falling asleep, sweating is observed. Here this point may be useful.

In disorders of descending related to the cardiac orb, e.g. in **hiccup**, tension in the middle of the body, **pain of the heart** and **forgetfulness** this point can also be used if the symptoms are due to cardiac yin deficiency."[50]

7.2 TCM diagnosis as an inclusion criteria

The inclusion criterion for the study to be done consists of a cardial constitution with yin deficiency and a felleal-stomachal imbalance as an orb pattern. This would reflect the tendency to felleal as well as stomachal signs that we observed in the clientele that we recruited from the Department of Prothodontics of the Heidelberg University Clinic. As under these circumstances point selection and Chinese diagnosis match, a more successful acupuncture can be expected according to the results that we obtained in other double-blinded studies mentioned before. As the parameterisation of the results is relatively easy, like the measurement of mouth opening, one can say that the major problems of such studies are solved.

7.3 Double-blinding

We have previously undertaken double-blinded studies as we have described before. This Heidelberg double-blinding design can be transferred to the TMD patients without major difficulties.

7.4 Therapy according to diagnosis

Other methods of Chinese Medicine may be evaluated for the treatment of TMD according to this diagnosis. Insofar this study opens the way to more scientific work on Qigong, tuina, cupping and other methods of Chinese Medicine.

7.5 Representative recruitment

In order to avoid further inaccuracies by preselection of patients via the University Clinic (see Discussion), one should also design a cooperative study with local dental clinics in order to have a representative recruitment basis.

In summary we believe that examining TMD by the methodology of Chinese Medicine opens new perspectives for the treatment both by Qigong and acupuncture. It also opens the way to new insights and possibilities to evaluate TMD as a pattern that requires a system biological approach by the dentist. The disease of the TMJ is not only a TMJ disease, but is is fully involved in a vast mechanism affected by vegetative, emotional, psychosocial and other factors.

ATTACHMENTS

DOCUMENTATION SHEET

:: _____

name: _____

_____ **Profession:** _____

Order of Complaints: **Date:**

1 _____ VAS [%] _____ [%] _____ [%] _____

2 _____ VAS [%] _____ [%] _____ [%] _____

3 _____ VAS [%] _____ [%] _____ [%] _____

our: black dark normal yellow white

sistency: dry normal soft mushy
liquid changing, undigested food

ness: (inner tension) +++ ++ + - -- ---

urine: 1 glass 2 glasses 3 glasses, conc. normal light

s: light dark lumpy flowing too much
intermenstrual bleeding fluor

: much few white yellow opal liquid solid lumpy slimy

stinky profuse sticky at night forehead cold hot

sensation: icy cold sensitive to cold normal
warm hot; icy chills cold chills changing

Pharmacotherapy _____ _____ _____

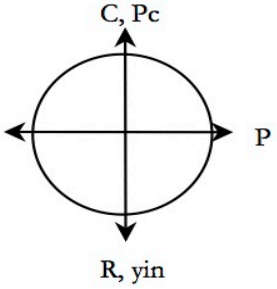
Size: small normal large **Colour:** pale normal excessively red livid
Coating: dry normal clear sticky white yellow brown
Structural signs: hairline cracks grooves wadi Vileda freckled

left	right

left	right

left	right

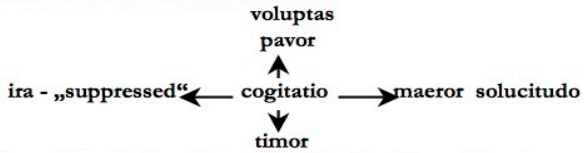
stitution:



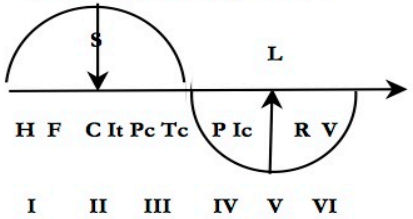
nent concept:

Agent:

algor: localised, tearing, stiff, better with warmth, hyaline coating; **p. intentus**
humor: dull, swollen, heavy limbs, sticky coating; **p. lubricus**
pituita: doughy, lubricous, yellow coating; **p. lubricus**
ventus: sudden, shooting, tingling, little blisters, paraesthesia; little dots; **p. chordalis**
ardor: „-itis pain"
aestus: hot, dizzyness, nausea
ariditas: dry skin, dry cough, worse with the beginning of heating period
xue stasis: heavy stabbing pain, livid tongue



Orb: location or pattern



Guiding criteria:

repl.	**depl.**
calor	**algor**
ext.	**int.**
yin:	**yang:**
yin	ventus
xue	internus
fluids	ardor vigens
jing	ascending
	disturbed
	unfolding/deficiency

How to Use the Documentation Sheet

The most important issue of this documentation sheet is the **subjective order of complaints.** One of the major ideas of Chinese Medicine is to accept that everybody has an innocent nature, an inborn way (dao) of life, which is in the language of cybernetics dao, the target value. That means that significant differences may show from one person to the other in the subjective sensation of complaints, e.g. a lung cancer patient full of metastases may not find a dyspnoea to be the most bothering symptom but pain in the big toe. Then we would even assume that this is the actual value most deviated from the target value of this individual. We would normally treat the most bothering complaint in order to make the phases running, so the functional continuum of the phases starts again and the block, the lack of transition of functions, is replaced by transition, transformation and thereby change of individual sensations. If there is no change, there is no hope. That is why the **I Ging** is called the **Book of Changes**, which may be also interpreted as the book of hopes. The body only comments deviations from our inner way. This is why a symptom is not our enemy, but it is a road panel to our inner nature. This why symptoms are helpful, if we understand them. Symptoms are not helpful and disastrous if we cannot understand them in time, as the message of the body becomes more extreme over time, and therefore help may come too late. As long the disease remains functional mainly, we have a high probability of curing the patient and prevent worse scenarios.

There are three sections on our standardised documentation sheet:

- The upper section contains the **formal data** as well as **pulse, tongue and general findings**. These serve as a first aid of assessment. It also contains two figurines which may be marked at the sites of affection or symptom.
- The middle section contains the **diagnosis**.
- The lower section is left empty to write in resulting **acupoints** which relate to the individual parts of the diagnosis.

Concerning the upper section, the formal data like name, first name, date of birth and profession are listed in the upper left corner. Then the patient should name his/her complaints. Care must be taken that the order of complaints, in the example of the sheet the most important three, is from the most bothering, place one, to the second most bothering, etc. This is necessary as we will refer to this order of complaints again after putting up all the diagnosis. Please do not fill in at the first moment the VAS (visual analogue scales). Do this later, after examination. We recommend this because during the course of a session the people become more familiar with the therapist and warm up within the session. They may therefore tend not to over-express their emotional perception to get into contact at first sight.

After having established the full diagnosis ask for the complaints on a visual analogue scale which goes from 1 to 10.

- 10 means maximum pain or individual stress induced by the complaint.
- 1 means almost not bothering.

There are some specific rulers to evaluate the visual analogue scales which you can purchase from the relevant shops. So, after treatment put in the percentage of the remaining complaint, e.g. if you put in 20 % this would mean that the pain is 80 % better. In most of the cases of joint pain one can bend the relevant joint to the extent “to which the pain occurs significantly”. After treatment you can again bend the joint to the same degree and ask the patient how much pain is left in comparison to that before treatment. Take care that you bend the knee or hip or toe or back to the same extent. This kind of pain measurement is relatively exact and well reproducible.

Another method of pain measurement is called inclinometry. It refers to the fact that after treatment the joints may be more flexible. You would then bend, e.g. the knee, until the same amount of pain comes up as before. The difference of the angle of bending could also be taken as a measurement.

These two simple methods were developed in order to make rapid assessment for practice. They have been used in clinical studies meanwhile successfully.

Likewise you could measure pain in the abdomen by marking a spot on the belly and by pressing the belly until the pain comes up. You could try to reproduce the degree of pain with the same pressure and you may measure pain in the abdomen by this little procedure. The assessment of pain or complaints before and after measurement is very worthwhile because it objectifies your therapy.

In general, patient who have an amelioration in the first session will have good results whereas people who have no good response on the first treatment have less good results in the future as a clinical experience. Also, if in the first session the pain or complaint has not become significantly better, you may change your diagnostic evaluation accordingly.

There are two more sites to document this on other dates in order to get some idea of the course of disease.

Please note that the documentation of the course of disease is in the right upper corner. It also consists of a short documentation of tongue findings. For this purpose take a pencil and mark what you find, like topological changes, fissures or deviations of the shape of the tongue that you find in an idealised way marked on the documentation sheet.

You might e.g. take a pen and adjust the contour of the tongue to the patient’s finding. You can also in another setting take photographs of the tongue in addition to what you have marked with a pencil. For instance, in the set-up of a home visit of a patient you can simply store that within your camera in addition to what you have recorded with the pencil. This can complement but not substitute the first documentation with the pencil, because some categories are given above the tongue pictures which are your personal evaluation. So the pencil documentation carries the evaluation and the photograph may be used for an objective documentation. Unfortunately photographs sometimes change the colour of the tongue tremendously.

Also the dynamic process of stretching out the tongue often shows changes during the movement. These dynamic changes are sometimes not taken up by a single photo. This applies to shivering (tremor) or to broadening and narrowing the tongue during the examination. Therefore, the photographer should wait until a representative position of the tongue has been achieved. In cases in which the camera shows different colours than in the original, try to get a grey card as a reference. These grey cards are commercially available cards and show you objective grey and white tones of colours. During processing of the picture by e.g. Photoshop or most other commercially available programs, you can then adjust the greyness or the whiteness according to this card.

On a practical level, we never faced difficulties of this because we took a powerful ring flash which would overcome local neon light, sunlight or other sources of light. This is why we became adjusted to our individual camera.

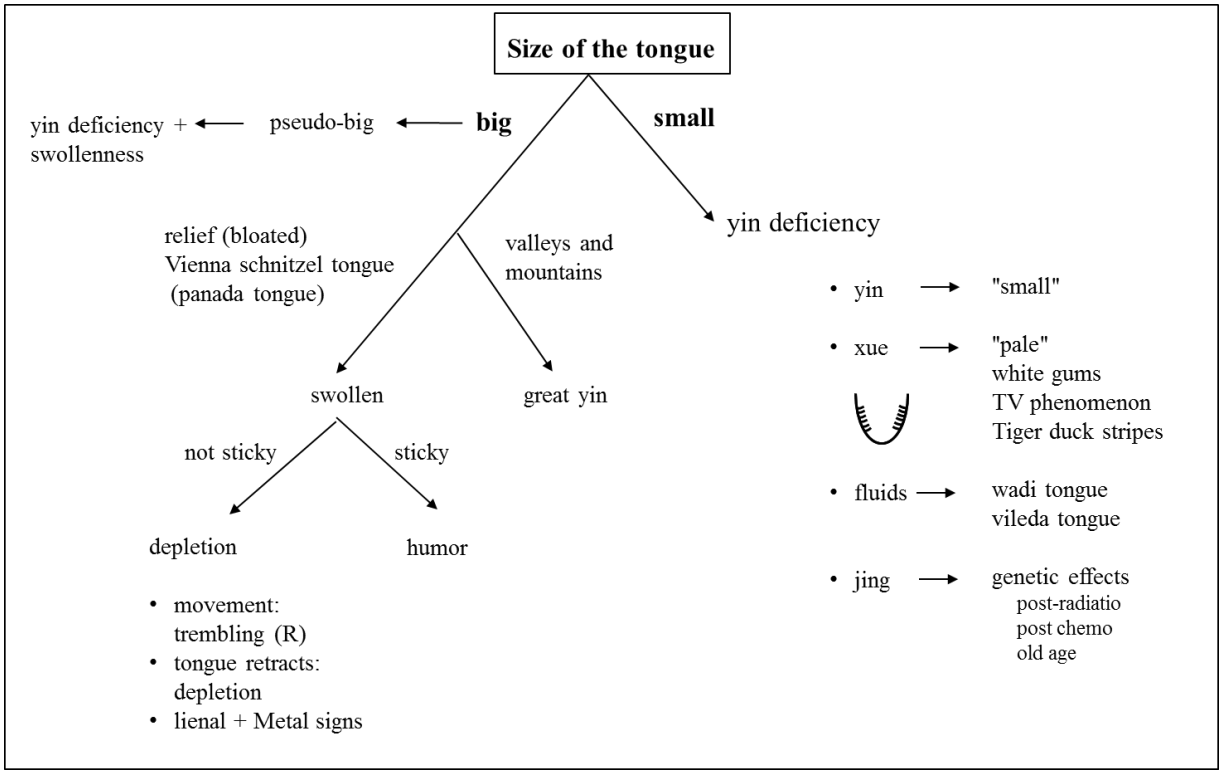
Tongue findings

Let us just shortly summarise what the tongue findings may indicate. The respective findings may be encircled with a pen in order to evaluate the tongue.

1) The size of the tongue:

- **Small tongues** that are smaller than the row of teeth in the opening of the mouth indicate yin deficiency

- **Large tongues** may indicate strong yin or, more frequently, accumulation of humor.



2) The colour of the tongue:

The colour of the tongue is defined by the colour of the body.

- **Pale tongues** point to algor or heavy xue deficiency
- **Excessively red tongues** point to calor
- **Livid tongues** have a bluish complexion and point to stases of xue or to neon light

3) Topology of the tongue

Hairlines are just small cracks that may be present. Cracks may be within the tongue indicating lack of fluid or yin deficiency where they appear. Grooves are like fissures or valleys of the tongue that may indicate more severe and deeper yin deficiency or damage. A wadi tongue refers to the complex picture in which major parts of the tongue look like a dried-out river, a wadi in the desert. This points to severe yin deficiency in terms of lack of body fluids.

Often this comes from excessive calor formation

- by deep infection
- by long-standing over-activity of the workaholic or the pericardiac timor patient
- it may be also the result of pharma intake

The **Vileda tongue** is characterised by the fact that before these cracks, grooves and wadi signs come up the texture of the whole tongue looks like a predecessor of the alterations named before, as if it was a Videla kitchen towel. These towels can be torn apart and then show a lot of hairline cracks. Of course you cannot do this with the patients tongue, but the similarity of this phenomenon led to the assumption that this is a predecessor of fluid deficiency.

Sometimes portions of the tongue look like raspberry dots. These dots are little elevated pimples of tissue and point to ventus or ventus internus (**ventus dots**). If this comes up one may call this a freckled tongue.

4) The coating of the tongue

This applies to the surface signs and exudations may be present.

- A **dry aspect** of the tongue normally points to calor whereas
- A **clear coating** points to the guiding criterion algor
- **Stickiness** may be felt by the patient if the coating feels sticky. This is a clear sign of humor.
- White, yellow or brown coatings indicate the degree of condensation of pituita. This means that **white coating** indicate beginning pituita, **yellow coating** more dense and older pituita und **brown coating** may be present in heavy old pituita which is normally caused by intoxication. **Toxic calor** may have produced this coating which may also come from so-called calor toxins. These calor toxins are postulated toxins that may

occur in virus diseases or in food poisoning or in substance intake such as in drug addicts, in chemotherapy etc.

Note: brown coating can come from red wine consumption, from cafesinho and from sweets.

Coatings on the tongue may also be topologically distributed in a typical manner.

Encircle the type of coating and connect this with a line to the respective region on the schematic tongue picture. There are also structural signs on the tongue. This term refers to physical alterations of the shape of the tongue, of the surface, etc.

Likewise the course of disease can be documented for the three individual most bothering symptoms at three different time points with three comparative tongue and pulse findings. Naturally, sometimes you would according to your findings change phytopharmacological prescriptions. This is why pharmacotherapy is documented with the course of the disease. In case that you change acupunture concepts accordingly, you may also mark this here and give more detailed information on that on the back side of the documentation sheet.

The upper part of the documentation can be divided into three parts:

- general information
- course
- evaluation.

The left upper part contains information on the formal data and the general status of the patient. It is necessary to have some general information on the patient indicating his/her regulatory status in terms of the guiding criteria. As repletion and depletion are already well-documented in the evaluation section on the lower third of the documentation sheet.

Some of the questions referring to calor and algor and to the model of the stages are summarised here under formal data.

Stool

Stool in Chinese medicine is judged by the colour. The darker the colour and the drier the stool is, the more you suffer from calor.

- **Black stool** would point to a high calor finding in the gastrointestinal tract which is represented by the stomach orb at the most. Also in western medicine black stool like tar would indicated bleeding which is a sign of highest calor. Black, tar-like stool requires immediate further investigation as it may be the result of dangerous bleeding.

- **Normal darkness** points to calor, **yellow stool** points to the phase Earth and insufficiency of the lienal orb. **White stool** may indicate even more insufficiency of the Earth. From a western standpoint, yellow and white stool come from biliohepatic insufficiency. As we have pointed out previously, the impact of the biliary acids on the whole motility of the peristalsis are very important according to western physiology. In Chinese Medicine, this general steering of peristalsis is believed to be an Earth function. This is why it is associated with yellow up to white stool.

- The **consistency** of the stool may be dry like sheep stool which points to calor. Some may argue that a lack of body fluids would lead to sheep-like stool, but it only leads to dry constipation and a uniform dry stool mass. One could say: stool like little balls (sheep stool) points to calor, stool hard like an old bread which comes in one section may indicate lack of body fluids.

- **Soft stool** is clearly pathologic and may point to humor. This humor in most cases is provoked by algor of the centre. The more liquid the stool is, the more humor is present, like in mushy or even liquid stool.

- Stool with **watery parts** may also come from the renal orb which is associated with the phase Water.

- Changing stool and **undigested food remainders** normally point to the lienal orb. Sometimes this lienal orb insufficiency comes from algor which results in loud bowel sounds. In other cases such “functional” diarrhoea is depletion of the lienal orb going along with burn-out or stress, simple exhaustion of the patient

Drivenness. One of the key symptoms of **calor** is feeling of being driven. Therefore the patient may present with inner tension. Your subjective perception of inner tension is therefore documented. Besides from calor, inner tension may come from suppressed ira or pericardiac patterns. In general, inner tension is one of the most reliable indicators of calor.

Urine

It is well known that sparse concentrated urine goes along with calor, large amounts of fluids which are pale in colour go along with the guiding criterion algor. It may be difficult to assess the amount of urine in a patient because the patient may not be able to evaluate this. Also, in a western setting many constantly consume fluids without the feeling of thirst. This habit is maybe culturally induced, as we like to sit together and have something to drink. When this drinking has no physiological implication and may confuse the examiner. Other sources of over-drinking may be a lack of heating in winter which is sometimes compensated by hot tea, cafesinho, ginger tea etc. This is why under western circumstances an excess amount of pale urine is very common although the patient has the guiding criterion calor. The inner tension under these circumstances and the colour of the tongue may be more indicative, more significant. The only method of quantification that worked in practice so far is to ask for the number of glasses of urine that the patient would estimate. We would normally refer to normal drinking glasses which contain 0.1 litres of fluid.

Menses

The colour and features of the menstrual blood may indicate many conditions such as: A **light red** colour indicates **calor**, a dark red colour on the contrary means that the yang power of the light blood was used up by an obstacle during the course of bleeding. The energy was taken out of the blood so it changes to dark. **Dark blood** is therefore blood after an obstacle in bleeding like **algor** or **ira**. This obstacle can be of iratic, hepatic or felleal origin as the phase Wood controls the smoothness of flow in general. **Lumpy** blood is a clear signs of hepatic, iratic or felleal affection. These coagulates are very significant. The normal blood flow during menses should be regular and flowing. If the flow is too much this may indicate a number of conditions, the most important of which is that ending of menstrual flow does not take place because the blood is not held within the body. This holding function is both a lienal and renal orb problem. This may lead to xue deficiency and even to hepatic yin deficiency so lumps and hypermenorrhoea may be present in the same person.

Intermenstrual bleeding mostly comes from a lienal orb deficiency as the fluids are not “held”. Also, the renal orb with its yin is compared to a vase of blood. In renal yin deficiency intermentrual bleeding is also frequent.

Compare reno-lienal syndrome, a hidden form of yang deficiency which is due to slowly vanishing yin. This is frequent over the age of 42. **Fluor** refers to vaginal outflow and is normally associated with humor. It may present both a lienal or a renal problem.

Note: if the menstrual blood contains watery parts, this may be seen on the underwear, the linen or the tampon. It indicates humor being present in the lower caloric.

Lack of menstrual blood, **hypo- and amenorrhoea** most frequently come from xue deficiency, a lack of xue. Measuring of the amount of blood though remains difficult. As a rule, more than two tampons per day are too much.

Ask also for the type of pill the women takes.

Sperm

The nature and the quality of ejaculate are asked for especially in patients with fertility problems. This means that in many cases the quantity of sperm is not significant and this category has not to be filled in in cases of infertility.

The general **amount** of fluid of the ejaculate correlates with the qi reserves. Little ejaculate occurs in exhausted depleted and therefore Water patients. The **consistency** and **colour** are also decisive. Thus sperm is white or slightly opalesque, like moon stone. Yellow or turbid sperm point to pituita which may be due to former infection. Unusual smell also indicates calor or calor pituitae.

The ejaculate consists of a fluid plus the cell content. The cells are packed in lumps and later, by certain catalysators, become a homogeneous mass. Chinese Medicine therefore asks for the consistency of the sperms. Lumps in the ejaculate are irregular and may come from the phase Wood. For instance, in western medicine over-excitation with quick ejaculation would be assumed to have short contact time to the process of softening the lumps. A slimy, hyperviscous consistency is also seen in pituita. Note that the watery parts of the ejaculate always are a little bit viscous, whereas the sperms and their cells show relatively low viscosity.

Blood in the sperm points to **calor**.

Sweat

Sweat is an important category of function in Chinese Medicine. **Smelly** or **stinky** sweat is a sign of **calor** as all odour is produced by calor. Sweat is a fluid and like all fluids control of flow belongs to the phase Fire or the heart. On the other hand, the sweat, like all fluids, is held within the body by the lienal orb holding the body contents and by activating the skin through the phase Metal and yang, the upward movement.

Profuse sweat is normally due to cardiac problems. In this case it has a normal temperature, in cases of hot sweat calor may be present too. If profuse sweat is cold, it may come from yang deficiency. Then the skin is not activated anymore and the pores of

the skin cannot close because yang is missing in the tissue. Then cold profuse sweat appears as a sign of yang deficiency.

Also the lienal orb controls the skin and it holds the flesh. It provides the general tightness of the pores, if this is generally a little “untight”, little amounts of fluid come to the skin, so the skin mostly feels sticky. Sticky skin therefore points to lienal orb problems.

Sweat at night points to yin deficiency and production of yang is low in the night and does not reach the surface. This is like in yang deficiency but occurring at night because it is due to yin deficiency. If sweat appears at night, the yin deficiency is more pronounced than the yang deficiency, although these two can be combined. The yang must also reach the upper parts of the body, so sweat on the forehead, i.e. the most upperpart of the body, may also indicate milder forms of yang deficiency.

Sweating on the hands and feet and a spot on the chest belongs to **“the five hearts”** and is a cardiac disease. Sweat may also come from **ventus** which is frequently seen in stinky feet.

Sweating in the face may come from the cardiac orb which opens to the face. Also humor can block the energies and provide more fluid which has to be excreted. Humor therefore also leads to more sweat which is normally sticky. In certain cases, however, humor in the upper caloric, the middle caloric or the lower caloric is indicated by sweat that appears on a whole caloric. The upper caloric ends at the level of the mammilla. So humor in the upper caloric like in sinusitis or lung disease etc. may result in humor superior sweating.

Sweating of the belly above the navel indicates humor of the centre, sweating below the navel is frequently seen in humor inferior sweating which may come from calor humoris of the lower caloric like in yin deficiency.

Temperature sensations

Temperature sensations are taken very seriously in Chinese Medicine and an old model of interrogation consists of the 10 diagnostic questions, the first of which refers to temperature sensations.

Sensitivity to cold points to algor and a cold feeling on the skin assessed by palpation may indicate the site of algor.

Icecold feelings though cannot be explained by a lack of microcirculation but they can be explained by a combination of low cell metabolism and a lack of perfusion like in yang deficiency. In these conditions you do not have the warming blood in the tissue and no warming function.

Warm sensations come up in calor which can gradually augment by far too warm up to a hot feeling indicating ardour.

Icy chills point point to algor or algor venti affecting the body as at the beginning of an infection when the defensive qi is affected by these agents.

Hot chills indicate the struggle between ventus and the defensive qi and occur in early stages of infections. Changing temperature sensations are frequently observed in yang minor stages, either acute or chronic.

How to Choose the Target Symptom

Anybody has his/her own target value, in Chinese medical language the **Earth**, the target value of your personal individual water basin.

Seen from a western perspective, this water basin is a parallel to the homoeostasis within your body. Therefore, in a western approach, one could say everybody has his/her own **homoeostatic target value**.

In a technical western sense that means that there is a set of individual target values for all parameters and variables such as blood values etc. in the body.

In this aspect Chinese Medicine differs from western medicine, in which a normal value is statistically seen, the values that 19 out of 20 healthy individuals have. This pragmatic approach of the interpretation of the parameters measured goes back to the assumption

that 95 % of the individual parameters lie within two standard deviations from the median in a population.

In other words the west has standardized target values for each blood value, whereas the East says that there is **one individual normality**.

Considering that 85 % of the patients do not have a measurable cause for their complaints, we might assume that some of the individuals have normal values, although they are personally sick. In fact one out of 20 people might have an abnormal blood value and be healthy conversely.

This problem is approached by western medicine by taking 20, 30 or more blood values in order to make the probability low that somebody who is severely ill falls through the examination pattern.

Insofar we might call this a cohort screening. It does not at all guarantee that somebody is healthy who has normal blood values. However, it is considered that 98 % of the people with normal routine panels of blood values are healthy in fact. This unfortunately does not correspond with the subjective feeling of the patient.

Insofar when making a Chinese traditional assessment of the person's functional status, the diagnosis, we would ask for the individual perception of the symptoms, assuming that the person would be **subjectively bothered most** by those functions that are most distant from the target value. So look for the most bothering complaint that presents the severest abnormality, if you base your evaluation on this hypothesis.

For the correct diagnosis it may be decisive to find out what is the subjectively most bothering complaint. Sometimes the order of complaints is even unclear to the patient. For instance, many patients with severe and chronic back pain or pain by gonarthrosis have given up the expectation of any cure. Therefore, they sometimes omit these pains when they give an explanation of their current status.

In other cases, extremely so in felleal patients, it is not easy for the person to decide what is worse or better. That is to be seen as a felleal personality sign and may occasionally not facilitate the diagnosis.

All disease is a relative insufficiency of regulation and the power to set back the actual values to the target value. This ability is called **Earth** in the language of the first Guiding Criterion.

Insofar all disease is a relative insufficiency of the functional power of the axis of the system (the Earth). You cannot down-regulate or up-regulate adequately to cope with the challenges to your system which we call disease.

Normally the subjectively most bothering symptom is the highest challenge to the Earth. Therefore, if you can abolish this biggest challenge, the worst symptom, you can relieve the challenge to the Earth and therefore cure a variety of symptoms by choosing the worst one as your target symptom.

This general rule applies to the most common pathologies that you see in daily practice. There are only few exemptions which we will refer to in the individual case in which it is necessary.

Name: _____

First name: _____

born: _____ **Profession:** _____

Order of Complaints: **Date:**

1 _____ VAS [%] _____ [%] _____ [%] _____

2 _____ VAS [%] _____ [%] _____ [%] _____

3 _____ VAS [%] _____ [%] _____ [%] _____

Stool:

Colour: black dark normal yellow white

Consistency: dry normal soft mushy liquid changing, undigested food

Drivenness: (inner tension) +++ ++ + - -- ---

Vol. of urine: 1 glass 2 glasses 3 glasses, conc. normal light

Menses: light dark lumpy flowing too much intermenstrual bleeding fluor

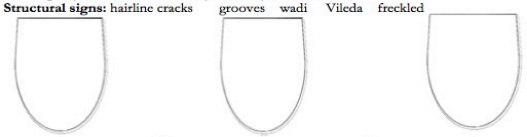
Sperm: much few white yellow opal liquid solid lumpy slimy

Sweat: stinky profuse sticky at night forehead cold hot

Temp. sensation: icy cold sensitive to cold normal warm too warm hot; icy chills cold chills changing

Pharmacotherapy _____ _____ _____

Size: small normal large **Colour:** pale normal excessively red livid
Coating: dry normal clear sticky white yellow brown
Structural signs: hairline cracks grooves wadi Vileda freckled



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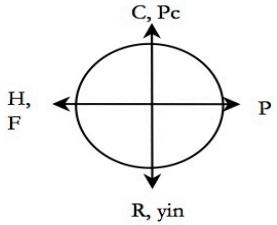
Constitution:

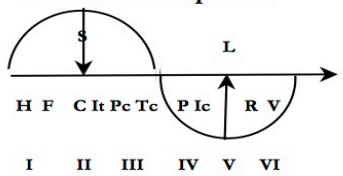


Agent:

algor: localised, tearing, stiff, better with warmth, hyaline coating; **p. intentus**
humor: dull, swollen, heavy limbs, sticky coating; **p. lubricus**
pituita: doughy, lubricous, yellow coating; **p. lubricus**
ventus: sudden, shooting, tingling, little blisters, paraesthesia; little dots; **p. chordalis**
ardor: „-itis pain"
aestus: hot, dizzyness, nausea
ariditas: dry skin, dry cough, worse with the beginning of heating period
xue stasis: heavy stabbing pain, livid tongue

voluptas
pavor
ira - „suppressed" ← **cogitatio** → **maeror solicitudo**
timor

Orb: location or pattern



Guiding criteria:

repl.	**depl.**
calor	**algor**
ext.	**int.**
yin:	**yang:**
yin	ventus internus
xue	ardor vigens
fluids	ascending
jing	disturbed unfolding/deficiency

Treatment concept:

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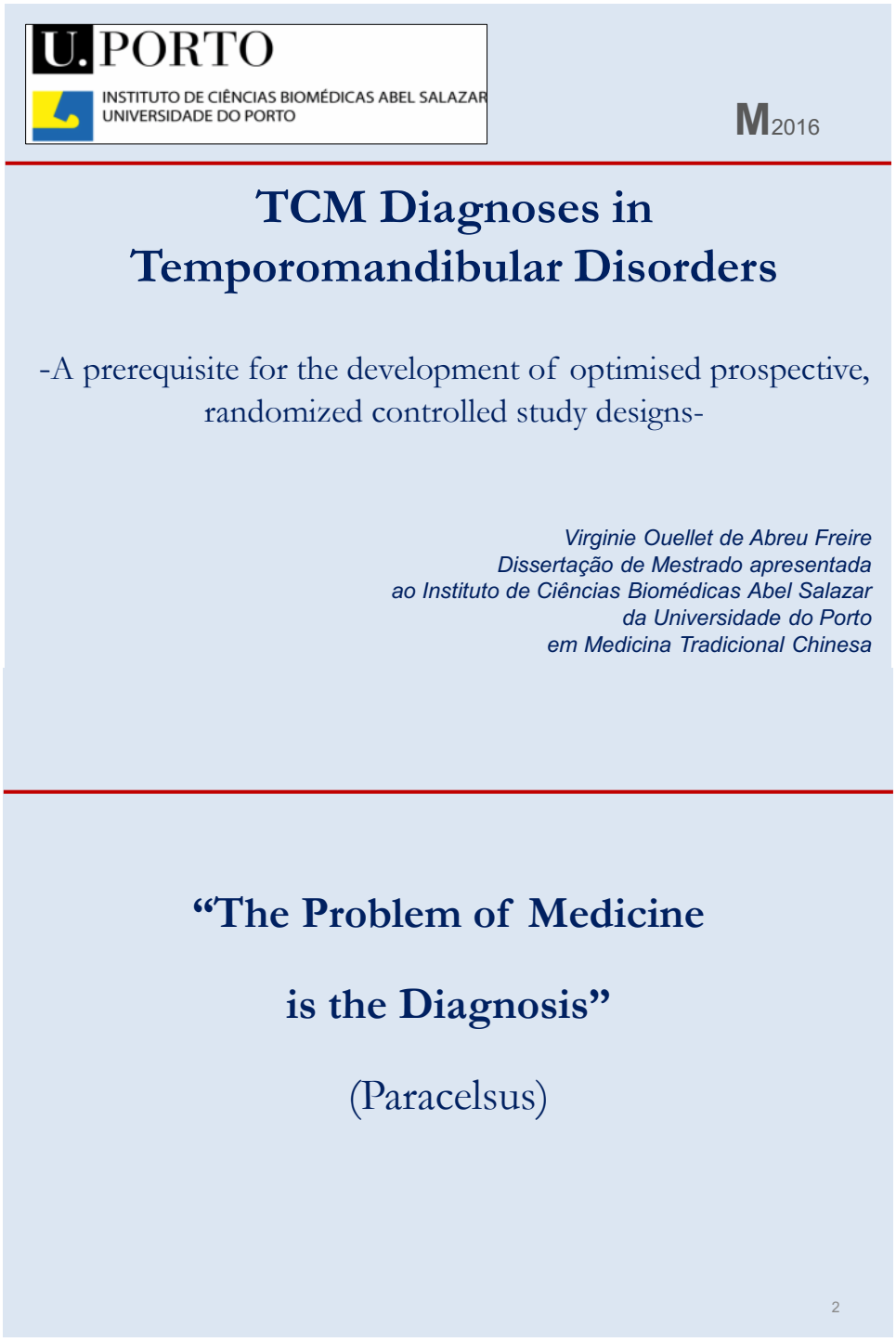
Power Point Presentation



Overview

- Background
- Methodology
- Results
- Discussion
- Conclusion

3

Background: Definition of TMD

- group of conditions that cause pain and dysfunction in the jaw joint and muscles that control jaw movement.

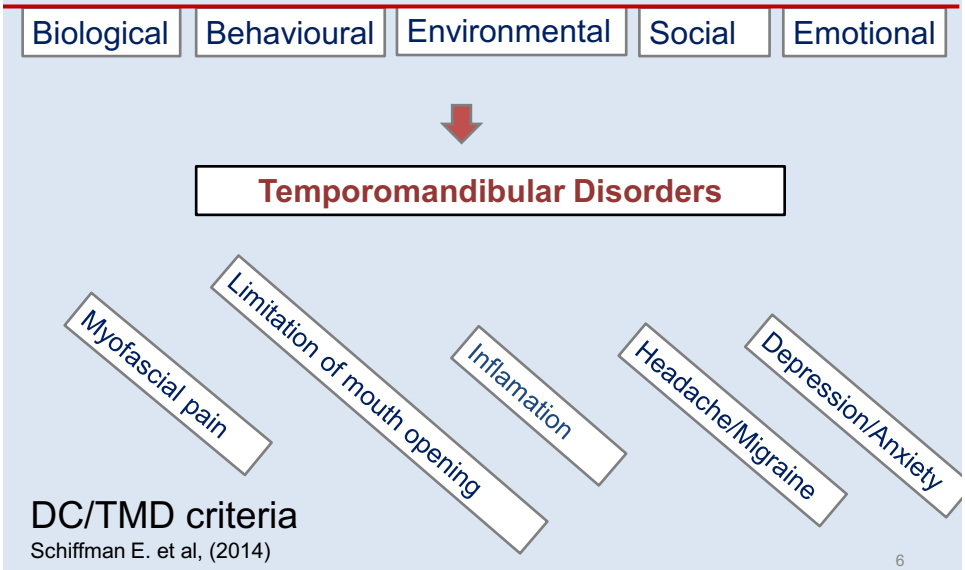
4

Background
Significance of TMD

- approximately 5 to 12% of the population
- annual costs in the US estimated at $4 billion. National Institute of Dental Craniofacial Research, USA.
- About half to two-thirds of those with TMJ disorders will seek treatment.
- The prevalence is higher in women
- TMD were associated with higher levels of psychosocial symptoms, affective distress, somatic awareness, and depression.

5

Background
Multifactorial Etiology of TMD



DC/TMD criteria
Schiffman E. et al, (2014)

6

Background: Treatment multimodal

- Analgesics
- NSAIDs
- Occlusal splint (bite guard)
- cognitive behavioural therapy
- physiotherapy and surgery
- **Acupuncture ?**

7

Background: acupuncture effective?

- **The last four systematic reviews found evidence that acupuncture *may be* effective**
- **all stated that more high quality studies are needed**

Quality problems in Acupuncture research?

8

Proof of *specific effects* are needed

Three types of effects are known:

1. *unspecific effects* like of any needle put anywhere („one therapy fits all“)
2. *suggestive effects* like placebo-effect
3. *specific effects* of acupoints that are due to the nature of the acupoints

Natural sciences / basic research : *„Acupuncture has specific effects“*

- *700 articles /year* positive on Acupuncture
- vast body of *evidence for mechanisms*
  (peripheral, CNS, endorphines and transmitter changes, physiology, bloodflow, fMRI, PET, EEG, -omics …)
- *many Studies* in animals and humans show *specific effects since the 1960`s*

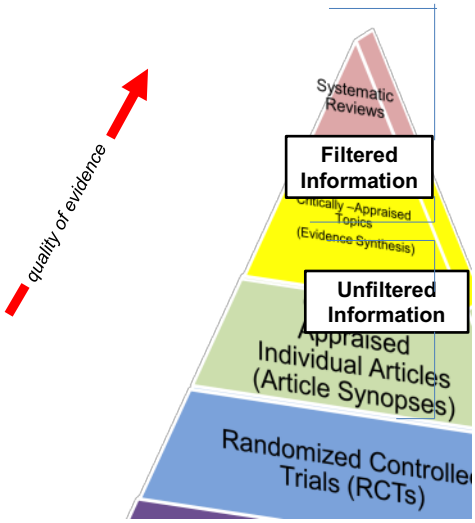
11

Clinical Meta-Analyses (e.g. Linde 2009)

„Acupuncture has no specific effects“

- ***Public opinion is shaped by Meta-analyses***
- ***Meta – Analyses are shaped by RCTs***

Methodological problems in RCTs !



3 Methodological Problems in RCTs !

- ***only „Soft Data“***, no objectively measurable physical parameter **In TMD: caliper, axiographs...**
- ***Controls inadequate*, effective, unblinded**, (cannot exclude Placebo, suggestive, or unspecific effects) **Heidelberg double blinding method**
- ***Insufficient Allocation of Acupoints* to clinical condition** **Heidelberg Model of TCM**
  („bad verum treatment“- not much more effect than any needling“, MMW 1998, Greten on GERAC studies)

13

Objective:
to create a study design for an RCT

- Defining the most frequent clinical features according to TCM in order to …

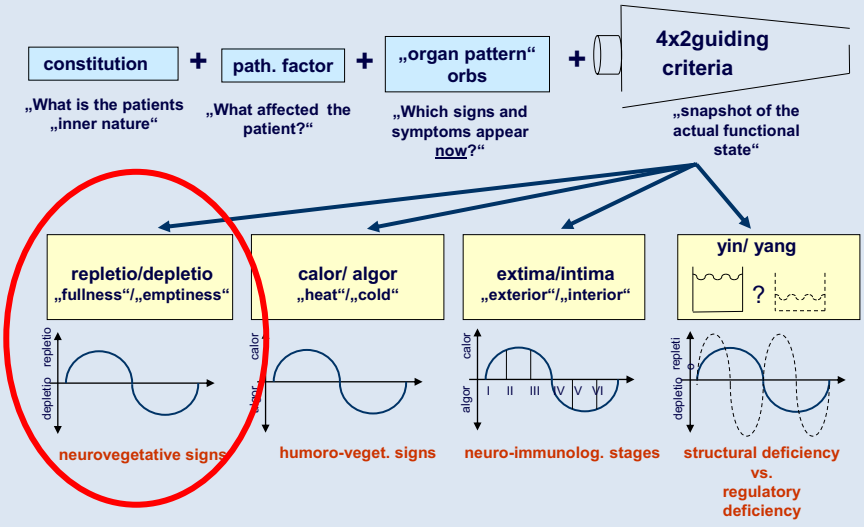
  - homogenize the sample
  - allocate the proper therapy
  - optimize recruitment

… in the framework of a <u>prospective randomized double-blind controlled study</u> of clinical acupuncture effects in TMD.

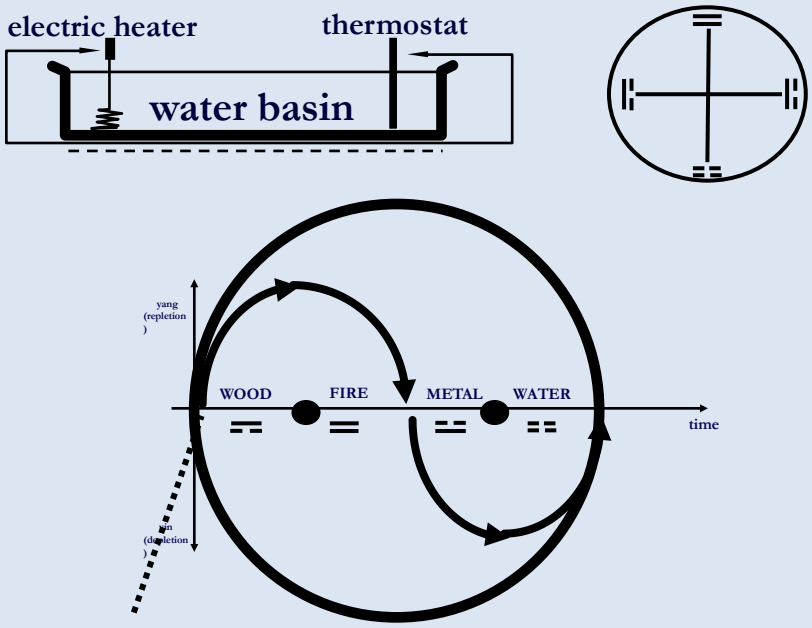
14

TCM as a vegetative System biology

4 components of the diagnosis



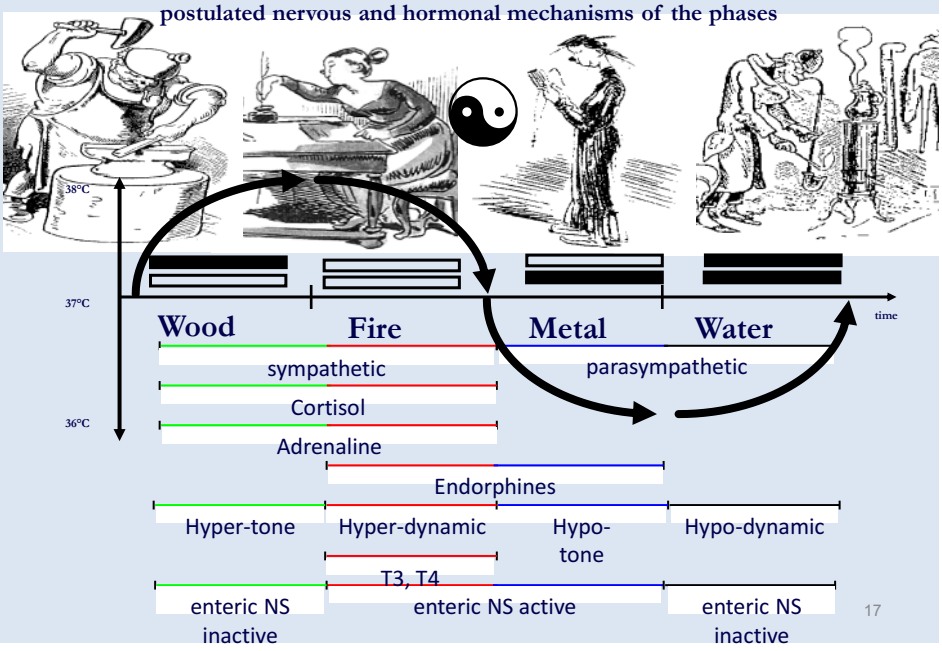
analogies of western regulation and Chinese technical terms



16

TCM diagnosis is a vegetative status

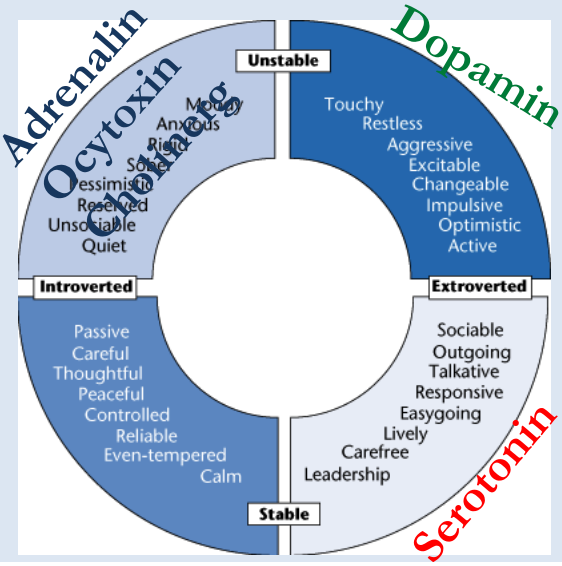
postulated nervous and hormonal mechanisms of the phases



17

Vegetative functions cause body language and emotions (Damasio et al. 2008)

Eysencks`s model, the best-validated in the West



Different kinds of TMD….

….only one kind of Acupuncture?

Add TCM diagnosis as *inclusion criterion*

Methodology: recruitment of patients

- Inclusion criteria: TCM diagnosis as described above, TMD diagnosed by an independent dentist of the University Clinic of Heidelberg, written informed consent after approval by the ethical Committee
- Exclusion criteria: lack of cooperation, health condition with contraindication to acupuncture, prior acupuncture treatment
- Sample: 28 individuals (21% male and 79% female) recruted by the Oral Rehabilitation Department of the Dental Faculty of Heidelberg University.

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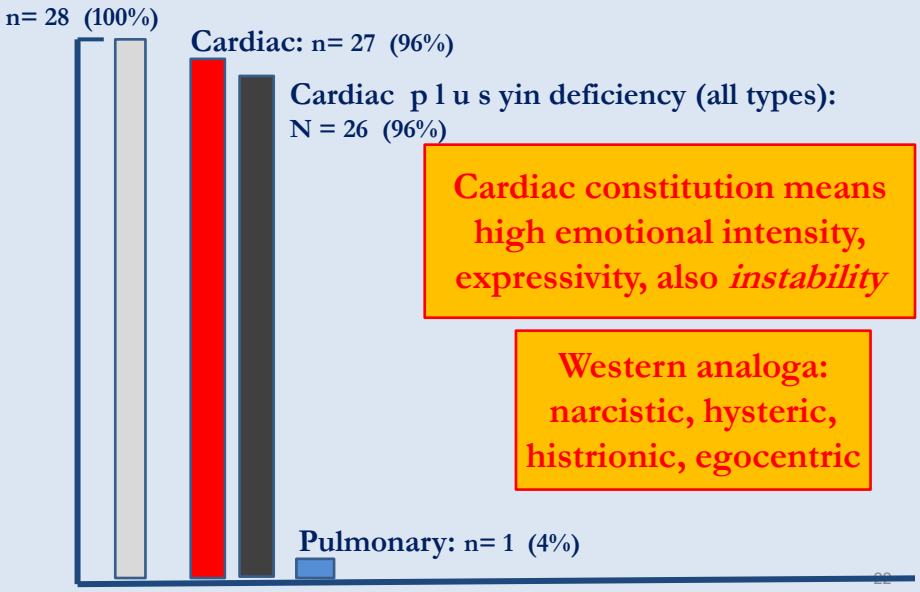
Assessment: standard documentation sheet method

Diagnosis according to the Heidelberg Model defined in textbook and manual (attachment):

- Tongue diagnoses were accomplished by two independent examiners integrated into the diagnostic process
- categorized in four parts: constitution, agent, orb ("organ pattern") and the guiding criteria
- Frequency of findings documented as bar graphs

21

Results: Constitution suggests C 3



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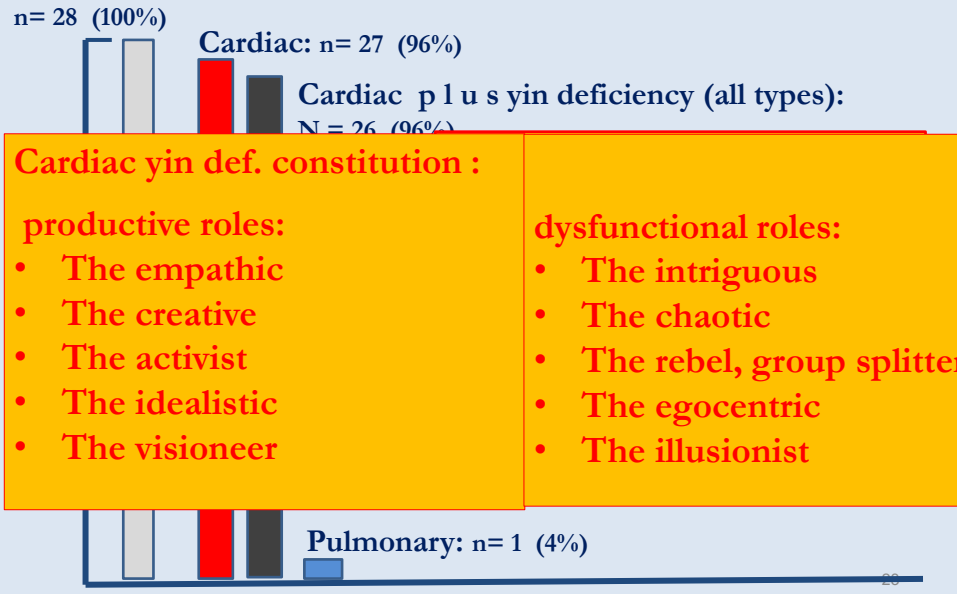
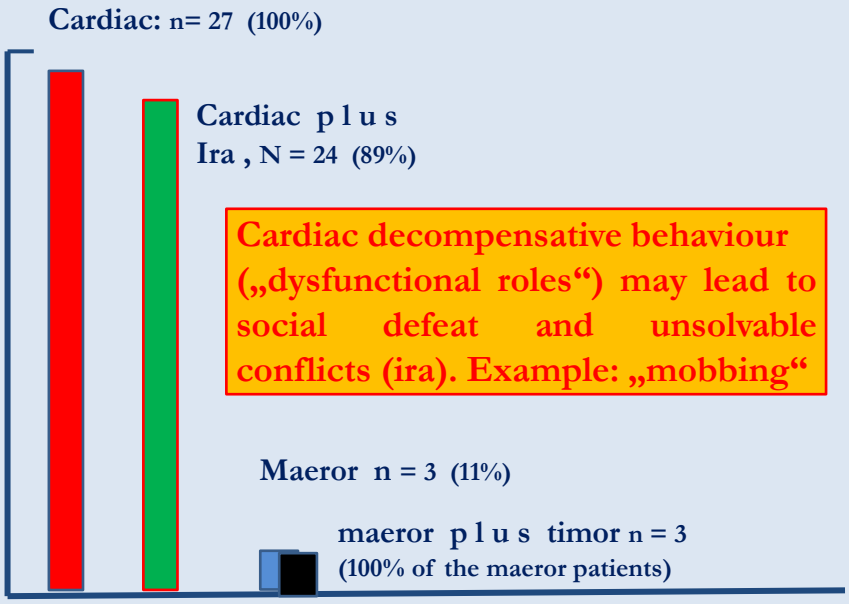
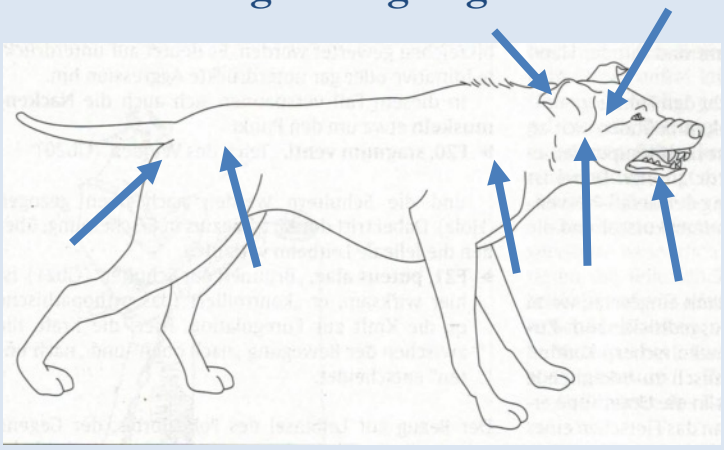


Emotions (guiding affection) suggest F21



Diagnoses in TCM: felleal, iratic pattern

Body language of controlled aggression
similar to the growling dog



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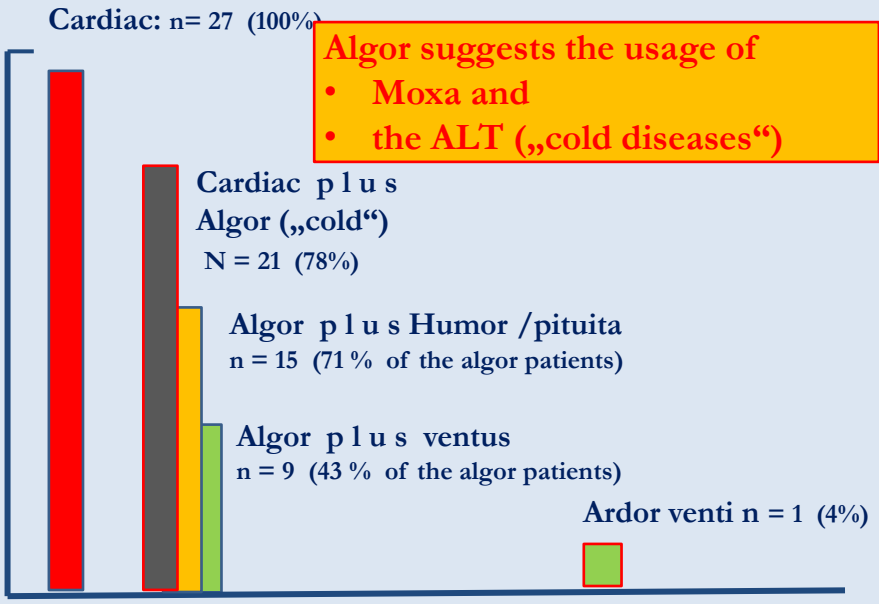
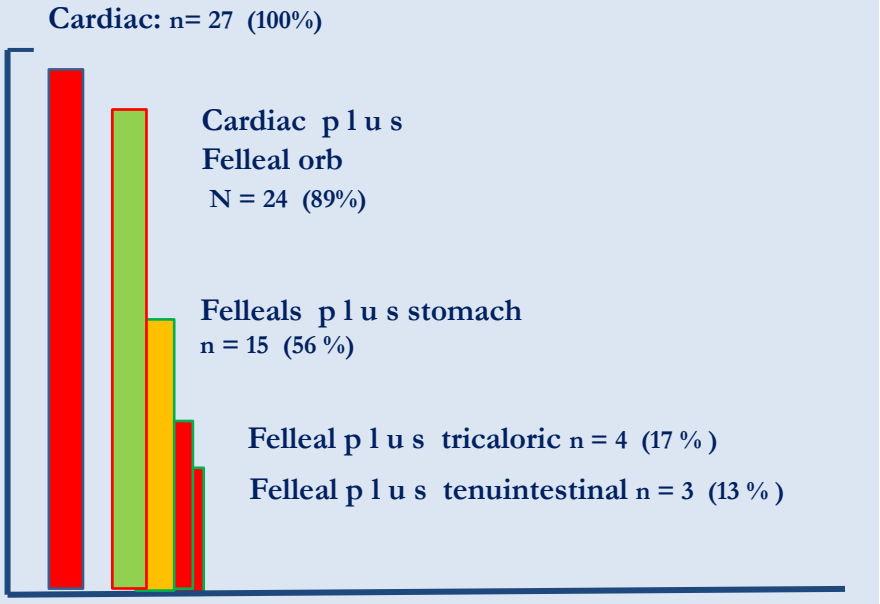
Extimal agents (path. Factors): ALT



Felleo-stomachal dysbalances: add S13



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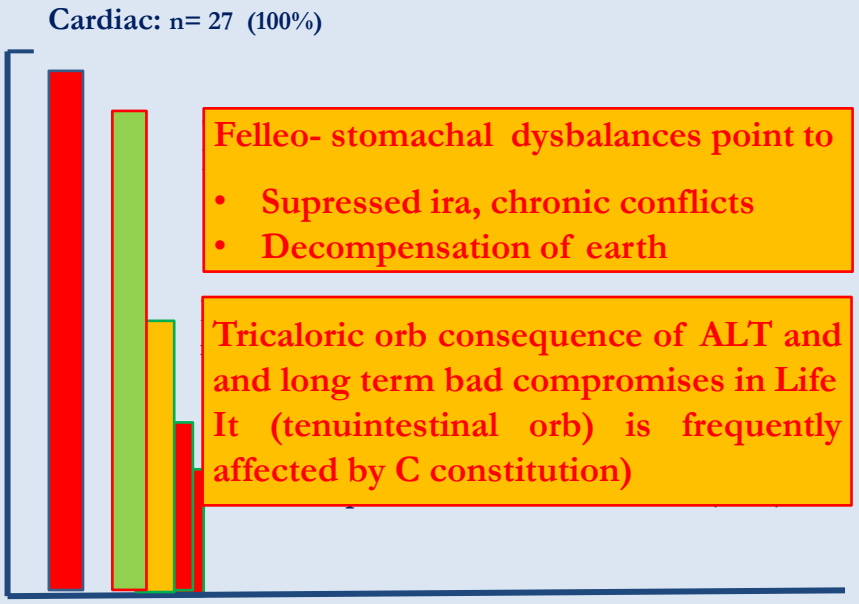
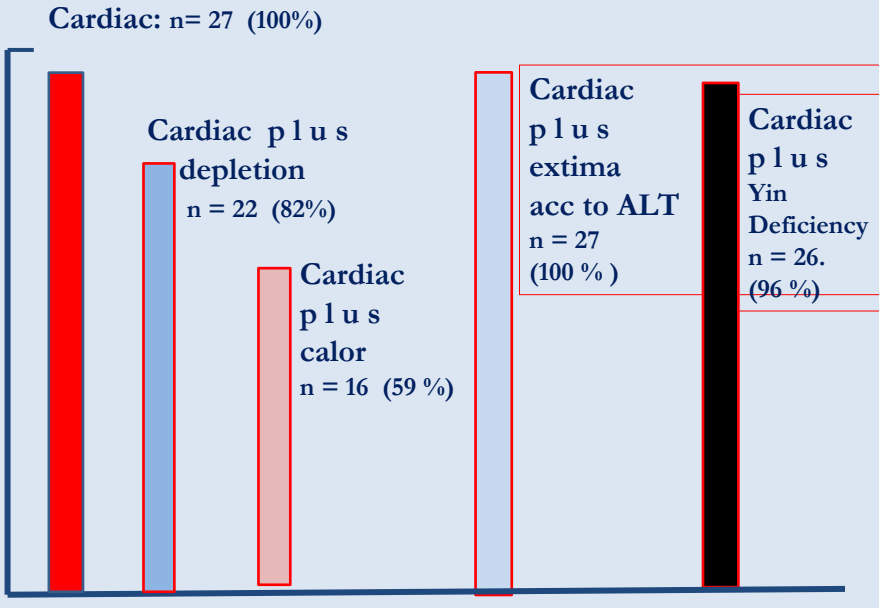


Results: depletion, calor , yin are frequent



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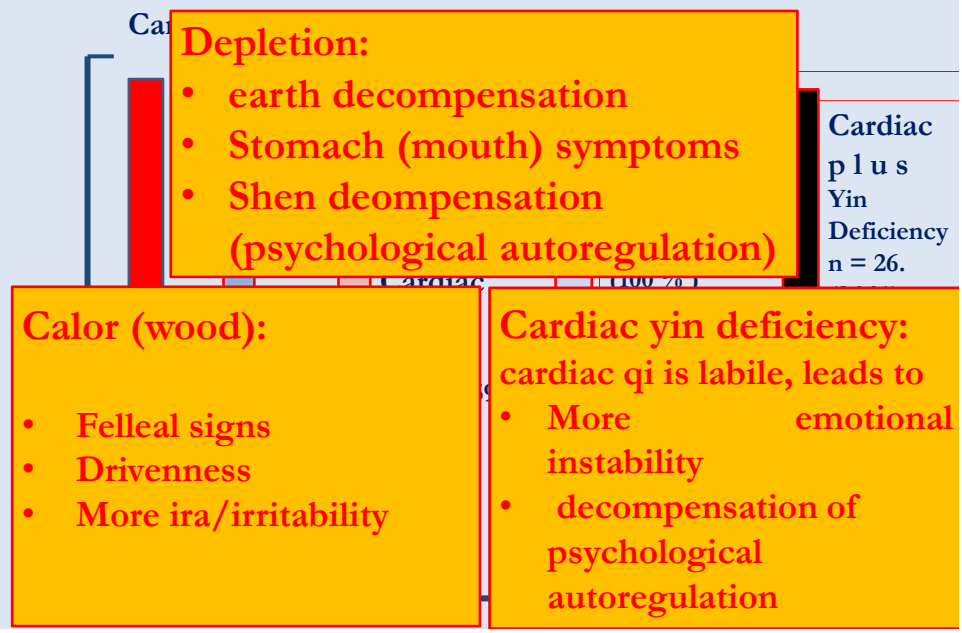

Discussion: can TCM help to understand TMD ?

1. TCM: disease due to decompensation of Homeostasis
2. Cardiac constitution with yin deficiency: emotional instability, decompensating emotional autoregulation
3. Western Analoga: narcistic, hysteric, histrionic, egocentric,
4. dysfunctional roles: the intriguous, the chaotic, the rebel or group splitter, the egocentric, the illusionist
5. Chronic frustration and suppressed aggression („suppressed Ira“, „ growling dog“ with bruxism)
6. Calor (drivenness) fosters irritabilty and ehaustion (depletion)

31

Discussion: can TCM help to understand TMD ?

1. TCM: disease due to decompensati… …is
2. Cardiac constitution with yi… instability, decompen… …ion
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5. …ustration and suppressed aggression (…ppressed Ira“, „ growling dog“ with bruxism)
6. Calor (drivenness) fosters irritabilty and ehaustion (depletion)

TMD as a systemic psychophysical disease, a syndrome needing systemic dentistry

32

Discussion: can TCM offer help TMD patients

1. Acupuncture has pain relieving, anti inflammatory, emotional efects
2. Phytopharmacology promotes psychophysic stability by treating cardiac yin deficiency
3. Qigong for emotional selfmanagement
4. Tuina for muscle release
5. PTTCM to for better self competence andto manage conflict patterns

33

Discussion: can TCM offer help TMD patients

1. Acupuncture has pain relieving, anti i… matory, emotional efects
2. Phytopharmacology promo… …y by treating cardiac yin d…
3. Qigong for c…
4. Tui…
5. PT… …tence andto manage confi…

TMD as a systemic disease should be treated by all modalities of TCM and in combination with Western Medicine….

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Further investigation

- Larger sample size
- Inter-group comparison (preselection of University Hospital vs. Local dental clinics)
- Double-Blinded study design as described
- Other methods of treatment to be investigated:
  - Qigong
  - Tuina
  - Cupping
  - Others...

35

Conclusions

- Most frequent diagnosis
  - Constitution: Cardiac with yin deficiency
  - ira, Agent algor
  - Felleo-stomachal imbalance
  - Depletion, calor, yin
- Should be integrated as an inclusion criterion in double-blinded, prospective, controlled and randomized studies.
- Suitable pattern of acupoints:
  - F21 (compl. ALT: TK5)
  - S13 (compl. ALT:IC10)
  - C3 (compl ALT:R3,R7)

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